

QUICKTIME: SMASH-HIT SOFTWARE FOR MAC MOVIES

MAY 1992

MacUser

APPLE'S LOW-COST
POWER!

The LC II and Personal
LaserWriter NTR
give you more Mac
for your money

BONUS!

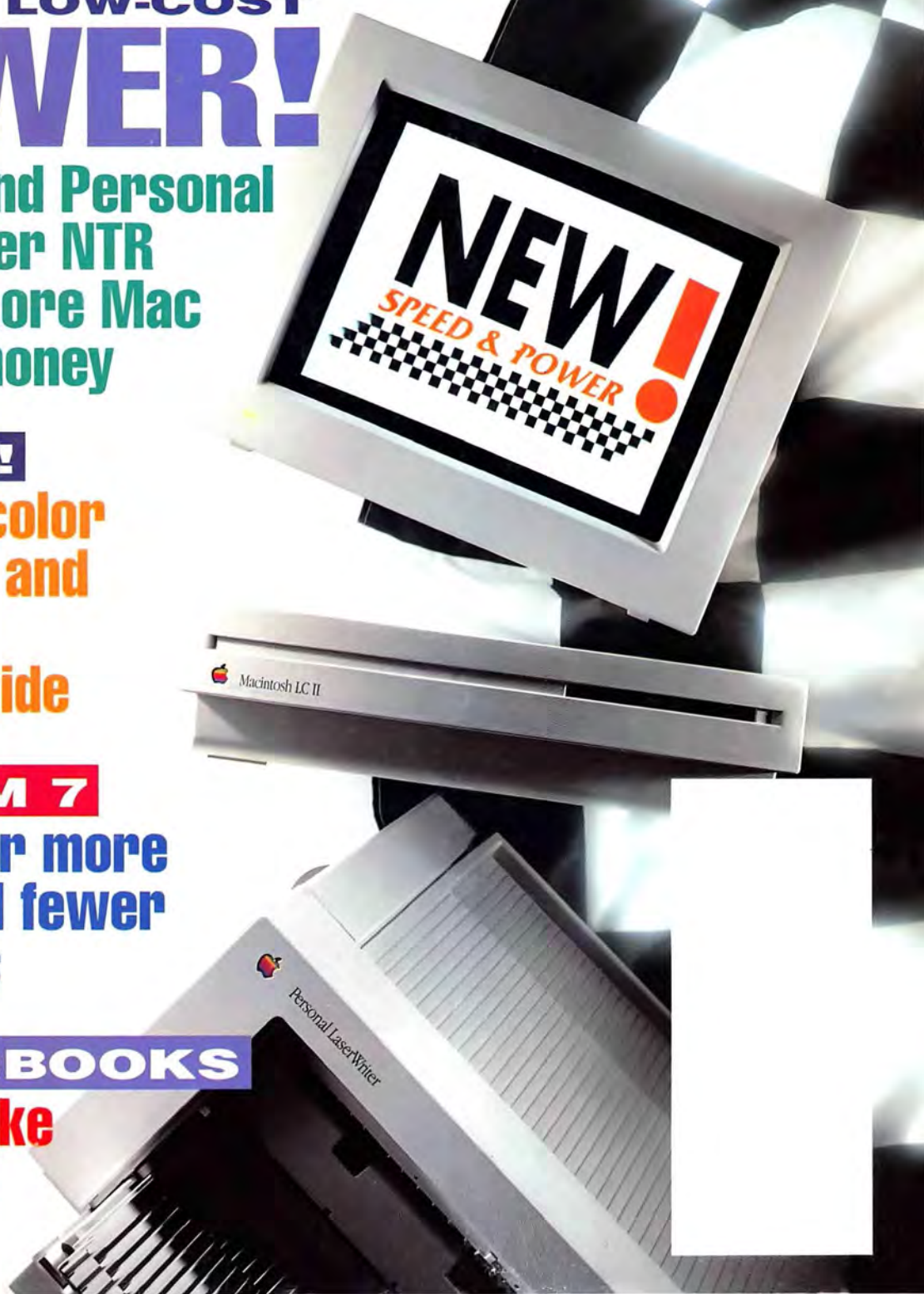
Complete color
hardware and
software
Buyer's Guide

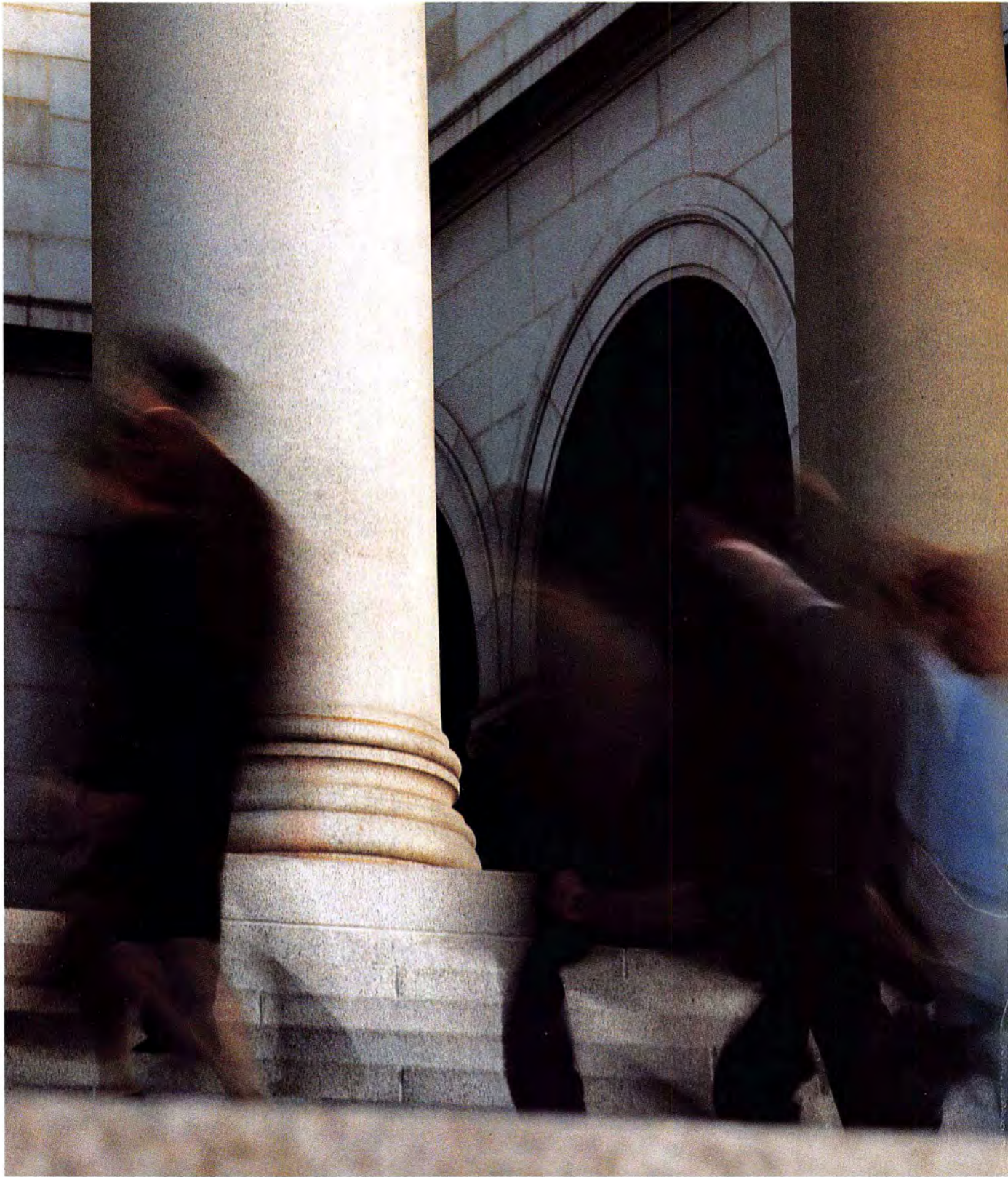
SYSTEM 7

Secrets for more
power and fewer
headaches

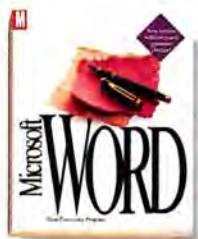
POWERBOOKS

How to make
yours run
longer





After all, we think you're only as good as the people you work with.



NEW WORD 5.0

When it came to designing new Microsoft® Word 5.0, we listened to you. After all, you know what you want.

And you told us. In your letters. Your faxes. Your post cards. To sum things up: you want a Word that will make doing your everyday work even easier.

So we came up with the Ribbon—think of it as easy access to powerful features. With it you can create columns, access fonts, change formats and use Word's new drawing tool. All with a single mouse click.

You'll even be able to

move text anywhere



EASY ACCESS TO FEATURES YOU USE EVERY DAY.

on your document with nothing more than a speedy drag and drop. Then there's our kinder, gentler print merge. It reduces a complicated process down to a few simple steps.

We are also introducing word processing's first built-in grammar checker. A find file feature that can locate documents based on dates, keywords or the author. An auto-save reminder. And more. Did we mention we fully support System 7.0? Including Publish and Subscribe?

Current users of Mac Word interested in upgrading for \$129* should call (800) 645-WORD, Department X07, or see their nearest reseller.

So please call as soon as you can. We can't wait to hear from you.

Microsoft

**Introducing new Microsoft Word. Of the
people. By the people. And for the people.**



WE LISTENED TO THOUSANDS OF
MAC® USERS, LIKE GUNNAR, TODD AND CHARLYN.
YOU CAN TAKE OUR WORD FOR IT.

MacUser

MAY 1992

Volume 8 Number 5

Cover photo by Steven Underwood



95

How to make the world of color work for you.

214

Can your PowerBook battery go the distance?



78

New: Apple's Mac LC II and Personal LaserWriter NTR.



217

What *not* to leave in your System Folder.

Features

MacUser LABS Personal Power

BY RUSSELL ITO

Announcing the Macintosh LC II and the Personal LaserWriter NTR, pumped-up versions of last year's best-selling models. **78**

QuickTime in Action

BY RUSSELL ITO

Here's how to get QuickTime, Apple's hot multimedia extension for System 7, up and running — quick!.... **84**

The 1992 MacUser Color Buyer's Guide **95**

MacUser LABS A Mac Color Primer

BY PAUL YI AND THE MACUSER LABS STAFF

The allure of color is matched only by its complexity. MacUser Labs shows how to coordinate your color strategy. **Buyer's Guide 4**

MacUser LABS Chasing Rainbows: Accelerated-Video Cards

BY WINN L. ROSCH

AND THE MACUSER LABS STAFF

The cost of color is usually paid in speed. How far can you push the speed limit? MacUser Labs evaluates the options by putting eight video accelerators through their paces. **Buyer's Guide 16**

MacUser LABS New Color Printers

BY RIK MYSLEWSKI

MacUser Labs tests eight new color printers that are based on four different competing technologies. **Buyer's Guide 36**

Departments

Jon Zilber

Just say the word. **21**

Guy Kawasaki

Are you one of The Not-Ready-for-QuickTime Players? **25**

Michael Swaine

You *will* become a scripter. Believe it. **29**

John C. Dvorak

How Apple could do more with Macs that do less. **328**

Letters

Readers vent pixel peeves, review reviewers, and call a Classic a Classic. **13**

Zmac **245**

Advertiser Index **250**

Marketplace **304**

Sections

NEW ON THE MENU 41

A preview of Excel 4.0, recession-bashing price cuts, word-processing lite, virtual networks, and more. 41

DESKTOP PUBLISHING 163

Type
Unlockable-font CD-ROMs offer instant access to entire type libraries — an invaluable service for deadline-sensitive designers. 165

Step by Step
Save a tree! Create your woodcut look in an object-oriented drawing program. 176

BRIDGES 185

Connectivity
Have soldering iron, will travel — these handy connectivity tips will let you connect any machine (palmtop, wristwatch, or data bucket) to a Mac. 187

Trouble Shots
Three strategies for making Macs UNIX-friendly. 195

PERSONAL MACINTOSH 203

Personal Best
Steven Bobker discovers that software is the *real* smart drug and explores the new Frontier. Plus: Easter egg of the month. 205

Shopping List
A checklist of handy tips for buying secondhand Macs and peripherals. 211

POWER TOOLS 213

Techniques
Life-extension techniques: How to prolong PowerBook power. 214

Beating the System
The hows and whys of reducing System 7 overhead for traveling light. 217

Power Programming
Danny Goodman demystifies HyperCard 2.1's Apple-event capabilities. Plus: a free stack. 221

Tip Sheet
How to master Word 4.0, QuicKeys, and more. 233

Help Folder
How to get your PowerBook through airport security, soup up System 7 performance, and make long-distance connections. 239

Reviews

Atlas Pro

Hot links are the key to this powerful and sophisticated geographic-data-analysis tool with an accessible user interface. 44

DataPivot

The Eddy Award-winning DataPivot teaches stubborn database or spreadsheet data some flexible and imaginative tricks — you'll never look at rows and columns the same way again. 46

Six Trackballs

Stop mousing around, and get down to business with one of these six input alternatives for a finer degree of cursor control. 48

ultraSECURE and Empower II

Protect your sensitive data from prying eyes as well as viral infections. 50

Enhance

A gray-scale image-processing program that won't break your budget and is a joy to use — if you can live with some convoluted terminology. 54

FontStudio 2.0

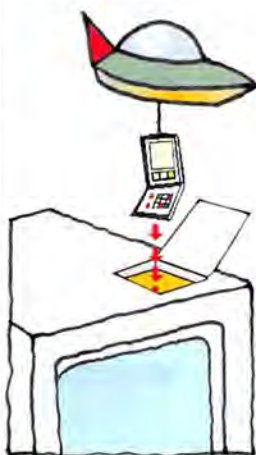
This new version features hinting tools, tools for creating intermediate-weight fonts, and automatic kerning-pair generation. 56

Hard Disk Toolkit

You'll get unprecedented control for optimizing hard-disk capacity and performance — but you'd better know what you're doing. 58

Quick Clicks

NewLife Accelerator!: Turbocharge your Classic. **DayMaker:** Go ahead: Make your day. **Kiwi POWER WINDOWS:** This program does windows — for System 7. **Spectre:** Tanks tilting at three-dimensional titanium windmills. 71



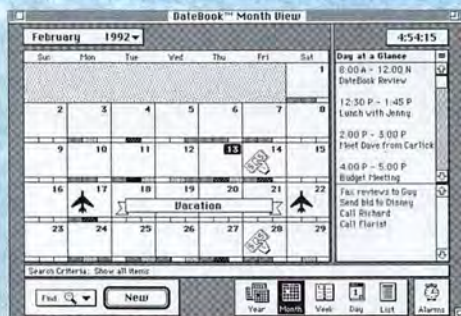
"We've got laptop word processors, palmtop computers, executive organizers — even data-bank wristwatches that make the thought of cheating on an exam by writing the answers on your socks rather quaint." 187

LOOKING FOR A GREAT DATE?



DateBook

DateBook may not be able to choose who you date, but it can ensure that you never forget one. DateBook is the *ultimate* in personal time management for Macintosh. It's instant access and advanced scheduling keeps you on top of what you need to do and where you need to be at all times.



DateBook makes it easy to plan your schedule. DateBook combines calendar, scheduling, alarms and to do lists to keep track of all your daily activities. A full-featured program that is customizable, yet, *simple to learn and easy to use*.

Scheduling

- Year, month, week, day, and list views
- Multiple formats: text, Gantt chart, time bar
- Easy click and drag interface

To Do's and Reminders

- Carry forward uncompleted tasks
- Group To Do's by categories
- Set recurring appointments and alarms

Printing and Searching

- Monthly, weekly and daily formats
- Filofax and DayTimer formats
- Extensive search capabilities

TouchBASE Integration

- Retrieves contact information
- Posts events to TouchBASE
- Seamless integration using Apple Events

Available from:

- MacZone
- MacConnection
- MacWarehouse
- Egghead Software

Or your local software dealer

For more information call:
(818) 780-2220 ext. 144



DateBook is a registered trademark of A.H. Software. ©1991, A.H. Software, Tri Center Plaza, 5990 Sepulveda, Van Nuys, CA 91411.

MacUser

Publisher

Janet Ryan

Editor

Jon Zilber

Associate Publisher

Jonathan A. Lane

Editorial

Executive Editor James S. Bradbury
Managing Editor Nancy Groth
Technical Director Henry Bortman
Senior Editors Aileen Abernathy, Russell Ito,
Rik Myslewski, Victoria von Biel, Kelli Wiseth
Technical Editor John Rizzo
Assistant Managing Editor Claire Hamilton
Chief Copy Editor Eva Langfeldt
Associate Editors Mark Frost, Susan Janus,
Stefan Lipson, Alfred Melo, Bruce Mewhinney,
Karen J. Ohlson, Elisa M. Welch
Senior Copy Editor Rhoda Simmons
Copy Editor Mary Cole
Assistant Editors Darryl Chan, Michele Hasson
Administrative Assistant Nancy Peterson
Contributing Editors David Biedny, Steven
Bobker, Andy Ihnatko, Guy Kawasaki, Bob
LeVitus, Michael Swaine, Kathleen Tinkel,
Kurt VanderSluis, Gregory Wasson
Contributing Anti-Editor John C. Dvorak
Assistant to the Editor Teresa Campbell-Molina

MacUser Labs

MacUser Labs Director Rik Myslewski
Associate Director Jeffrey S. Pittelkau
Project Leaders Mark Bieler, Tony A. Bojorquez,
Jeffrey K. Milstead
Lab Technicians Roman Victor Loyola,
Sean Saftred
Lab Administrator Anthony Stoltz
Network Administrator Stephan Somogyi

Design

Art/Design Director Lisa Orsini
Associate Art Director Diane Dempsey
Associate Technical Art Director Peter Alan Gould
Art Production Manager Jan McKenzie Rogers
Technical Illustrators K. Daniel Clark,
Mark W. Sweeney

Advertising/Sales

National Advertising Sales Director Ellen Ecker
Advertising Coordinator Elizabeth McGinnis
National Advertising Assistant Marci Yamaguchi

Production

Production Director Carlos Lugo
Production Manager Brenda Falco
Assistant Production Manager Monique Eisele

Marketing

Director of Marketing Vickie Welch
Marketing Manager Laurel Skillman
Events Manager Shannon Malliet
Marketing Coordinator Renee Weems

Operations

Group Business Manager Rosemarie Carbone
Assistant to the Publisher Christine
Pruski-Pamir
Assistant to the Associate Publisher Eileen Chang
Assistant Account Representative Doris Ashman
Receptionists Harriet Brittain, Colleen Dasher

On-Line: ZiffNet/Mac

Manager, On-Line Services Ben Templin
Assistant Project Leader Shef Syed

Ziff-Davis Publishing Company

Chairman and CEO Eric Hippeau
President J. Scott Briggs
Executive Vice President Ronni Sonnenberg
Group Vice President J. Samuel Huey
Group Vice President, Worldwide Direct
Publications Jim Stafford
Senior Vice President, Marketing Paul H. Chook
Senior Vice President Rachel Greenfield
Vice President, Operations Baird Davis
Vice President, Controller Howard Skolnik
Vice President, Creative Services Herbert Stern
Vice President, Research Marian O. White
Vice President, Circulation Bert Lacy
Vice President, Circulation Services
James F. Ramaley
Vice President, Marketing Services
Ann Pollak Adelman
Vice President, Production Roger Herrmann
Vice President, Europe Frank Kelcz
Vice President, Asia-Pacific Alan Power
Vice President, Technology
William B. Machrone
Vice President, Classified Advertising
Paul Stafford
Vice President William L. Phillips
Vice President Claude P. Sheer
Vice President and General Manager
Louis B. Dotti, Jr.
Executive Director/Information Systems
John Helliwell
National Managing Director/Magazine Networks
Joseph Gillespie
Director of Business Development
Steven Rosenfield
Director of Corporate Development Jeff Weiner
Licensing Director Jean Lamensdorf
Director of Planning Gary A. Gustafson
Production Director Walter J. Terlecki
Director of Sales Training Dan Leonetti
Director of Corporate Marketing Susan Delman
Editorial Director Lewis D'Vorkin
Director of Ziff-Davis Labs Beth Springer
Director of Public Relations Gregory M. Jarboe
Business Manager/Publishing Operations
Tom McGrade

Ziff Communications Company

Chairman William B. Ziff, Jr.
Vice Chairman Philip B. Korsant
President Kenneth H. Koppel
Executive Vice President Philip Sine
Senior Vice President Hugh Tietjen
Vice President, General Counsel, and Secretary
J. Malcolm Morris
Vice President, Controller, and Treasurer
Patrick J. Burke, Jr.
Vice President, Human Resources
Frederick K. Staudmyer
Vice President Steven C. Feinman
Vice President Seth Alpert
Vice President, Business Manager
T. L. Thompson
Vice President, Chief Information Officer
Thor Olson
Vice President, Electronic Editorial Director
Michael Kolowich

Entire contents © 1992 Ziff-Davis Publishing Company, a division of Ziff Communications Company. All rights reserved; reproduction in whole or in part without permission is prohibited. MacUser is a registered trademark of Ziff Communications Company. MacUser is an independent journal, not affiliated in any way with Apple Computer, Inc.





ANTICIPATION. THE LAST THING YOU WANT IN A MAC.

If your Mac freezes to a standstill when you try to perform even the simplest task, it's time to make it sizzle with a super fast accelerator card from Applied Engineering. Our high-performance TransWarp accelerators put zing in even the slowest of Macs. At prices so affordable they won't leave you cold. Our accelerators boost the Macintosh SE, Classic, LC, II, IIx, IIsi, Ilcx and IICI to lightning speeds. We've designed them around high-performance Motorola 68030 and 68040 processors. So you get speed plus guaranteed compatibility with all Macintosh hardware and software, including System 7. And at clock speeds from 16 to 50 MHz, our cards will make sure your Mac won't keep you waiting with baited breath next time your



With our super fast accelerator cards, like the TransWarp 040, your Mac will never keep you waiting again.

over 2,000 nationwide. Or call toll-free for a complete product catalog. And find out how to turn up the heat with a fast, reliable accelerator card from Applied Engineering.

projects are hot. We back all our cards with a 30-day money back guarantee*, full one-year warranty and free 24-hour bulletin board support. So you get a product you can rely on, not just a product you can afford. If you've been fishing for the right accelerator for your Mac, don't wait any longer. Hook up with any of our authorized dealers today – we have



APPLIED ENGINEERING
The Apple enhancement experts

1-800-554-MACS Ext.553

CIRCLE 69 ON READER SERVICE CARD.

Schedule

New Version
FREE Demo

MacUser

How to Reach Us

The editors of *MacUser* want to hear from you. Send questions, complaints, and compliments to *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Send electronic mail to MCI Mailbox 424-4936 or to ZiffNet/Mac (see below). *MacUser's* general number is (415) 378-5600. We are unable to look up stories from past issues, recommend products, or diagnose your Mac problems by phone.

Information Exchange

If you have a question or problem or a tip to share, write to Help Folder or Tip Sheet, respectively, c/o *MacUser*, at the above address. If you are interested in contributing to our utilities disk or labs-benchmark disk series, write to Michele Hasson at *MacUser*. For more help, you can take advantage of local user groups. Call Apple toll-free at (800) 538-9696, ext. 500, for user-group information.

Subscription Inquiries/Change of Address

If you want to subscribe to *MacUser* or have a question regarding a subscription, call toll-free (800) 627-2247 (U.S. and Canada only) or (303) 447-9330 (all other countries) or write to *MacUser*, P.O. Box 56986, Boulder, CO 80322-6986. New subscriptions and address changes take six to eight weeks. For back issues (subject to availability), send \$7 per issue, \$8 outside the U.S., to Back Issues Dept., Ziff-Davis Publishing Company, P.O. Box 53131, Boulder, CO 80322. *MacUser* (ISSN 0884-0997) is published monthly by Ziff-Davis Publishing Company, a division of Ziff Communications Company, One Park Avenue, New York, NY 10016. Editorial Offices: 950 Tower Lane, 18th Floor, Foster City, CA 94404. Telephone: (415) 378-5600. U.S. subscription rates are \$27 for 12 issues, \$45 for 24 issues, and \$62 for 36 issues. Additional postage for Canada: Add \$16 per year to the U.S. rates for surface mail. Single-copy price is \$2.95 (Canada, \$3.95). Canadian GST registration #R-123669673. POSTMASTER: Send address changes to *MacUser*, P.O. Box 56986, Boulder, CO 80322-6986. Second-class postage paid at New York, NY 10016 and at other mailing offices.

ZiffNet/Mac: MacUser On-Line

Follow these steps to join ZiffNet/Mac: Call (800) 635-6225 (voice) to find your local access number. Set up your telecom software with these settings: 8 bits, 1 stop, and no parity. Dial the local access number. When connected, press Return. At the following prompts, type in the responses printed in **bold**: Host Name: **CIS**. User ID: **177000,5200**. Password: **Z*MAC**. Agreement Number: **Z12D9014**. CompuServe users can just type **GO ZMAC** at any ! prompt.

Complaints About Advertisers

MacUser's editors are not responsible for the content of the advertisements in the magazine. However, if you bought a product advertised in *MacUser*, are dissatisfied, and can't resolve the problem, write to Doris Ashman, Ad Department, *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Include copies of relevant correspondence.

Permissions and Reprints

Material in this publication may not be reproduced in any form without permission. Send permission requests to Chantal Lavelanet and reprint requests to Claudia Crichlow, Ziff-Davis Publishing Company, One Park Avenue, New York, NY 10016.

Writing for MacUser

If you have an idea for an article you'd like to write, we'd like to hear about it. Send a query letter with samples of your writing (published, if possible) to James S. Bradbury, *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404. Allow four to six weeks for a reply.

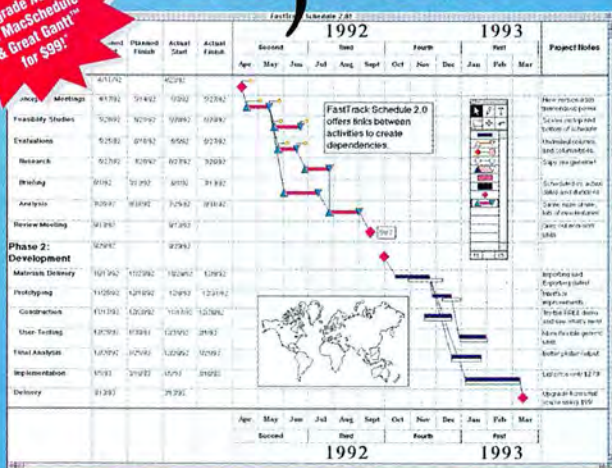
Product Announcements and Updates

Please send press releases to Michele Hasson, *MacUser*, 950 Tower Lane, 18th Floor, Foster City, CA 94404.

In Memory of
John J. Anderson
1956 - 1989
and
Derek Van Alstyne
1967 - 1989

Projects

Upgrade NOW
from MacSchedule
& Great Gantt
for \$99!



as fast as you can think of them.

FastTrack Schedule™ gives you the power to schedule anything, fast. Create custom Gantt charts for presentations that include graphics, labels, notes, titles, borders and real dates!

Walk away from tedious and old fashioned scheduling techniques. **FastTrack Schedule** offers a modern day solution for busy managers who need to get the project underway, and review progress quickly. Forget the frustration, scheduling doesn't have to be a nightmare.

Order your **FREE FastTrack Schedule** demo kit now and we'll ship it out within 24 hours!

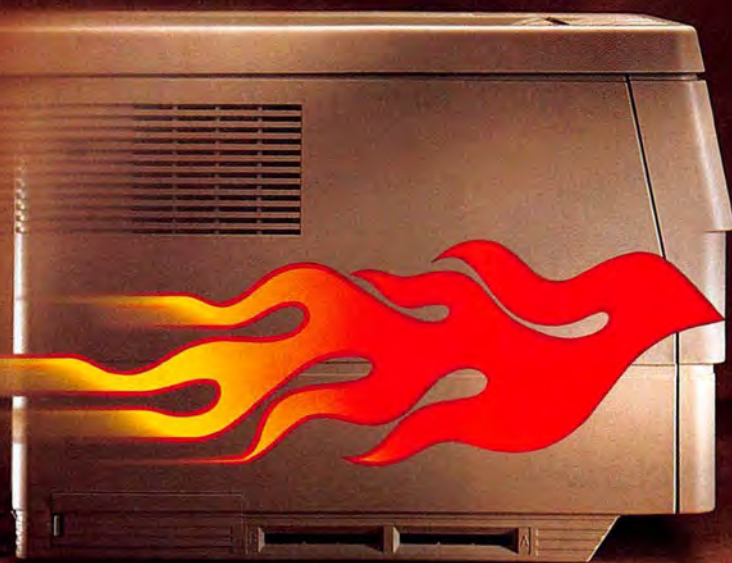
(800) 346-9413 or (703) 450-1980

CIRCLE 100 ON READER SERVICE CARD.

*Call for more details. Offer expires July 1, 1992!

AEC
SOFTWARE

Get Turbo-Charged



and get your chance to win!

Register for hot prizes in the Get Turbo-Charged Value Sweepstakes.



The Grand Prize includes the incredible new TI microLaser™ Turbo. PLUS...



Grand Prize winner also gets a choice between the TI TravelMate™ 3000 WinSX™ or Apple Macintosh IIx™ PLUS...



Over \$2,000 worth of publishing software: Adobe® Illustrator™, Corel Draw® and Aldus® PageMaker®!

Now between April 1, and June 30, 1992, when you see your TI dealer for a demo of the new microLaser Turbo or microLaser XL Turbo, you can register in the Get Turbo-Charged Value Sweepstakes. There's no purchase necessary.

The lucky Grand Prize winner drives off with a TI microLaser Turbo printer and a choice of the hottest computers on the market — the award-winning TI TravelMate 3000 WinSX or the Apple Macintosh IIx — together with three of the most popular desktop publishing software packages, Aldus PageMaker, Adobe Illustrator and Corel Draw.

Coming in second looks pretty hot, too. The Second Prize winner can choose between the TI TravelMate 3000 WinSX or the Apple Macintosh IIx.

After your test drive, if you buy a TI microLaser Turbo or microLaser XL Turbo loaded with PostScript® software from Adobe, you'll get a coupon for a free copy of Adobe Type Manager™ (ATM) software and Adobe Garamond Font Package! That's a total retail value of \$346 — you pay just a \$7.50



shipping and handling charge. Proving that you're always a winner when you choose TI.

Your dealer has all the details on the Get Turbo-Charged Value Sweepstakes. So sprint in today to see the best value in super-fast PostScript printing race through graphics software faster than other printers. And get your chance to win.

For the name of your nearest TI dealer, dial:

1-800-527-3500

 **TEXAS
INSTRUMENTS**



The Grand Prize has an approximate retail value of \$8,350. Second Prize has an approximate retail value of \$4,000. Promotion will be supported by all participating dealers in the U.S. and Canada. Void in Quebec. Canadian residents must correctly answer a skill-testing question to win. In Ohio or Michigan, you may also call 1-800-527-3500 for an entry form. microLaser, TravelMate and WinSX are trademarks of Texas Instruments Incorporated. Apple Macintosh IIx is a registered trademark of Apple Computer, Inc. Adobe, PostScript and the PostScript logo are registered trademarks and Adobe Type Manager and Adobe Illustrator are trademarks of Adobe Systems Incorporated. Aldus and PageMaker are registered trademarks of Aldus Corporation. Corel Draw is a property of Corel Systems Corporation.

Quick, Rip C

Before your Boss finds out you've just orde



\$249⁹⁹ NuvoLink SC
 “the fastest of the SCSI
 adapters” **MacUser** 9/91

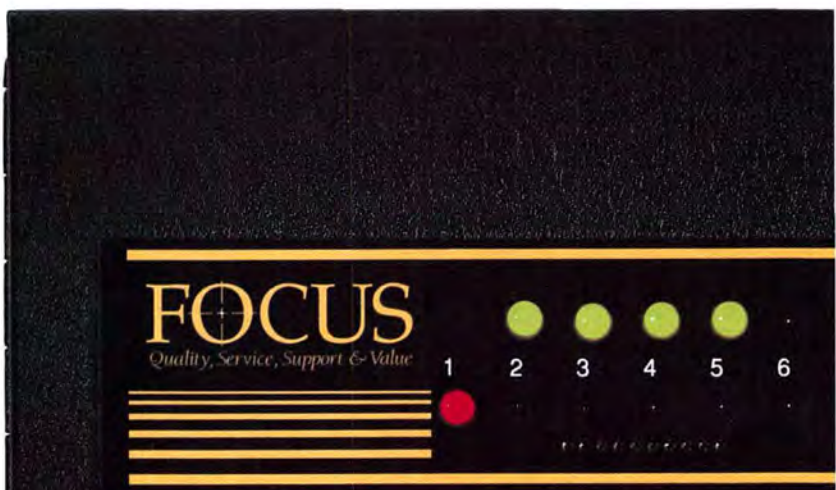
Don't use up your only slot in a Mac Classic, Portable, SE, Plus, IIsi, or LC— if you need to connect to Ethernet, you need NuvoLink SC™. Fully compatible with thick or thin cable, or twisted-pair 10BASE-T, NuvoLink SC installs with the push of a plug and a click of the mouse. Diagnostic software included.
 was \$495



Thinnet, Thicknet, or
 10BASE-T twisted-pair
 for all Ethernet networks.

four mice! **\$159⁹⁹**
 Send files at warp
 speed on Ethernet

Who has time for LocalTalk? Speed your files across the office at 10Mbps. Simply plug into your NuBus™ and connect thick or thin cable. Includes software and link-integrity-LED.
 NuvoLink II-T 10BASE-T (twisted-pair) \$169.99



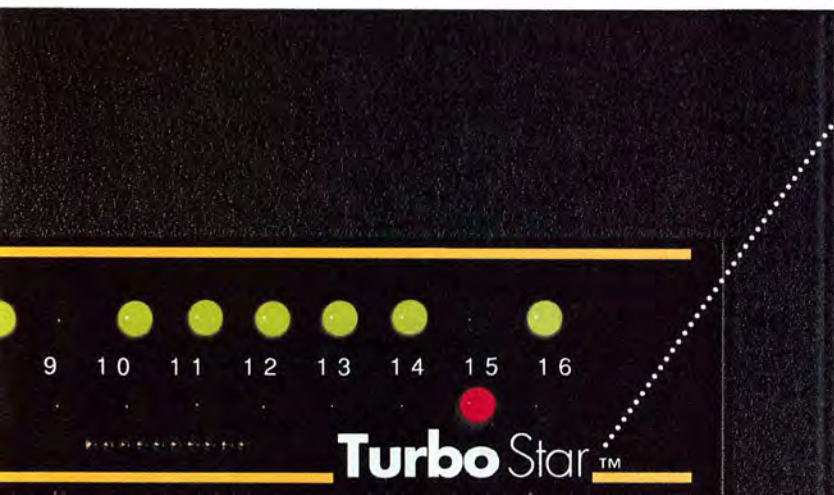
\$49

To Order, Call Toll

How to order: Our Sales and Customer Support representatives will help you Monday thru Friday 9am to 9pm Eastern time. We accept VISA, Mastercard, American Express, Fortune 500 PO's, Government & University PO's (approved), business and personal checks (with check approval - allow 10 days), Cashiers Checks, Money Orders and COD. We do not charge your account until we ship product! All prices and items subject to change and availability. Trademarks mentioned are owned by their respective companies. FOCUS is a registered trademark of FOCUS, Inc.
 © 1992 FOCUS Inc., 800 West Cummings Park, Suite 4500, Woburn, MA 01801

Put This Page!

connectivity products at 'Warehouse Prices.'



999

1-800-538-8866



30 day "Love It or Return It" satisfaction policy.
3-year warranty (additional 2 years is \$99)
Call for your Free Product Catalog, or to receive
additional product information via fax or mail.

"Easy to interface with existing twisted pair installations; system management over AppleTalk; excellent software; status lights."

MacWEEK ProductWatch 2/90

Our competitor's active hub was a star in its day. But it's been eclipsed by the FOCUS TurboStar™ – the smarter LocalTalk hub. TurboStar's Motorola 68008 32-bit processor and intelligent management software give you real star power. Our exclusive diagnostic software tells you what devices are active on each port, how busy they are, and what your networks load factor is. We think you'll agree: it's a startling array of extras for your \$499.99. Make the smart choice: Order your TurboStar today. Call us toll free at 1-800-538-8866.

MacWarehouse's price on Farallon Star Controllers doesn't even come close!



Only TurboNet ST has LED data indicator lights, Noise Reduction Circuit, Mac Protection Fuse, 5000 foot range, and self-termination.

only **\$14.99**

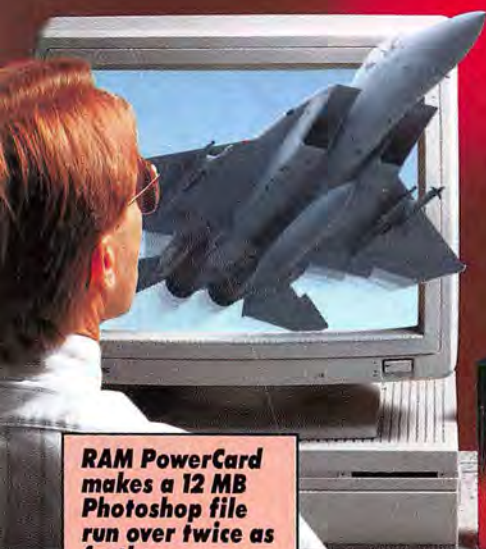
The best LocalTalk connector for less than the 'clone' price! Only TurboNet ST™ has Traffic Indicator Lights—LED's in each TurboNet ST flash to show data traffic, saving hours of troubleshooting time. And they're cool black. 10-Pack only \$149.99 / 50-Pack only \$649.

FOCUS
Quality, Service, Support & Value

"Your Connectivity Experts"

CIRCLE 240 ON READER SERVICE CARD.

There's more than one way to make Photoshop fly.



RAM PowerCard™

Non-volatile swap files with standard SIMMs!

Up to 256 MB per card!



RAM PowerCard makes a 12 MB Photoshop file run over twice as fast! (bigger is faster)



Get these results on fast Macs like the Quadra, IIfx, or DayStar 50 MHz PowerCache!

Make Your Fast Mac

Faster. DayStar's RAM PowerCard is a RAM disk that dramatically boosts your productivity in imaging, rendering and layout. It now includes PowerStart - a special utility that can automatically copy & save files to your hard drive.

Break The Bottleneck. The faster your CPU, the more your hard drive becomes the

bottleneck on large files. The RAM PowerCard eliminates the bottleneck. So, the bigger your files the greater your gain!

The Inexpensive RAM disk.

It plugs into any NuBus slot. Each card supports up to 16 standard Mac SIMMs, in 1, 4, or 16 MB sizes.

Using 4 MB SIMMs on the RAM PowerCard costs less than putting 16 MB SIMMs on your motherboard - *and it's just as fast too.* Plus, multiple cards are automatically "chained" into one large disk. So, the sky is the limit!

Come join us. 1-800-962-2077

Available through your favorite dealer
CIRCLE 159 ON READER SERVICE CARD.

DAYSTAR



D I G I T A L

5556 Atlanta Hwy., Flowery Branch, GA 30542, Int'l: (404) 967-2077, Fax: (404) 967-3018 - GSA Schedule #GSC-KESF-B-C-00046-N-30-91

This ad was completed with DayStar upgrades installed. ©1992 DayStar Digital, Inc.

About

MacUser

On a Claire Day

The woman with the magnifying glass has just found a typo, thereby winning *MacUser's* monthly Eagle Eyes contest. Her reward? Thousands of dollars a year; the undying gratitude of dozens of staff editors; and, every once in a while, a picture in the magazine.

But spotting typos won't win you any prizes unless you happen to be the assistant managing editor, a position already admirably filled by Claire Hamilton (she of the oversized monocle). For three years, Claire has been on the front lines of quality control, with the help of the copy department, checking every last detail of the magazine for consistency and accuracy.

There's more to Claire's job than discovering design disparities or errant commas. Claire manages that key stage in the process of producing the magazine when all the various elements that make up a story are merged into one Page-Maker file and printed out as a layout. Claire reviews the layouts to make sure all the pieces — the article itself, the sidebars, the illustrations, and the captions — are present and accounted for in a logical fashion.

It's her job to ensure that the magazine is a model of, well . . . clarity.

The initial master layouts that Claire marks up and reviews serve as road maps for the editors in their last look at the story before it goes to press, alerting them to content or illustration oddities. Each issue of *MacUser* is composed of hundreds of files, including all the assorted article manuscripts, icons, illustrations, and captions. That's why Claire also serves as the server observer, making sure not only that all the pieces are in on time and in the right place but also that everyone is working on the latest version of any given file. "We always mark corrections on a hard-copy version of the document so that we have a paper trail we can follow — like popcorn in the forest — in case we're lost. The paper trail has proved to be our salvation in more than one case of mixed-up versions," says the ever-sleuthful Claire.

And when the paper trail proves intractable, she turns to her own special brand of, well . . . clairvoyance.

This month, Claire was faced with the particularly daunting task of coordinating our special comprehensive buyer's guide to colort technology. Not only does this magazine within a magazine involve coordinating more complex story elements than usual but — because 100,000 extra copies of the buyer's guides are printed for special distribution to computer dealers nationwide — it also introduces the added complications of an extra print run.

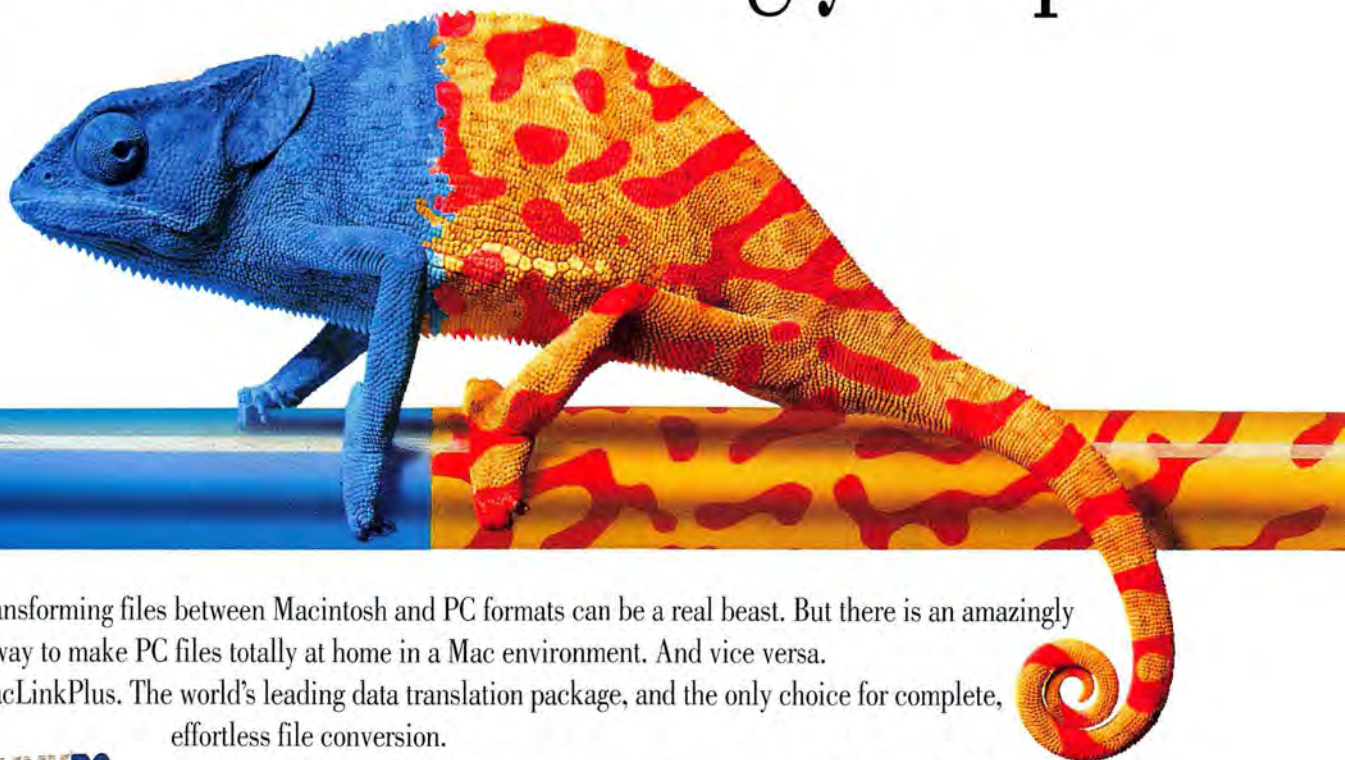
A perplexing proposition — unless you have someone who can make it all perfectly, well . . . claire. ☞



Assistant managing editor Claire Hamilton ensures that big stories such as this month's Color Buyer's Guide go in the right place at the right time.



With MacLinkPlus, Transforming Files Between Macs And PCs Is Amazingly Simple.



Transforming files between Macintosh and PC formats can be a real beast. But there is an amazingly simple way to make PC files totally at home in a Mac environment. And vice versa.

MacLinkPlus. The world's leading data translation package, and the only choice for complete, effortless file conversion.



MacLinkPlus is a vast resource of over 400 translator combinations for the most popular programs running under Macintosh, MS-DOS or Windows. Including Microsoft Word, WordPerfect, Excel, Ami Professional, MultiMate and dozens of other word processing, spreadsheet, database and graphics applications.

File translations are automatic with "point-and-click" simplicity, and we include DOS Mounter software so MS-DOS disks show up right on your Macintosh desktop. We even offer complete compatibility with XTND file conversion.

No matter what version of System you're running, MacLinkPlus sets the standard in ease of use. And our new version 6.0 is packed with features that exploit System 7 innovations.

For file translations when you're connected via a network, file server, or SuperDrive, all you need is MacLinkPlus/Translators. And for the added capability of file transfer using a cable or modem, MacLinkPlus/PC includes the same full array of translators as well as a serial cable and communications software.

Get MacLinkPlus 6.0 today. And watch all your PC files transform themselves before your very eyes. For more information, call DataViz at (800) 733-0030.

DATAVIZTM
THE DATABRIDGE SPECIALISTS

All product names are trademarks or registered trademarks of their respective holders. DataViz, Inc., 55 Corporate Drive, Trumbull, CT 06611 (203) 268-0030

CIRCLE 170 ON READER SERVICE CARD.

The Typist Plus. All other hand scanners.



- Scans directly into word processing, spreadsheet or DTP applications.
- Available at a single touch of a button.
- Proven Caere® *OmniPage*® OCR technology from the industry leader.
- Fully integrated OCR and image scanning.
- Caere's Graphic Editor™ features advanced image processing tools.
- Caere's LaserGray™ technology for superb image output.



- No direct input into any application.
- At least six tedious steps from scan to application input.
- Relies on third party OCR software. The result? Electronic alphabet soup.
- Zero integration of OCR and image editing software.
- Simple paint tools better suited for adding moustaches than photo retouching.
- When it comes to printing, what you see on screen is not always what you get. Not even close.

TYPIST
PLUS GRAPHICS

**Do the right thing.
Call 1-800-535-SCAN
for the dealer nearest you.**

CAERE®

Caere, the Caere logo and OmniPage are registered trademarks of Caere Corporation. Typist, Graphic Editor and LaserGray are trademarks of Caere Corporation. ©1992 Caere Corporation.

CIRCLE 25 ON READER SERVICE CARD.



We were so excited about System 7 that we didn't realize that some of our readers might be getting irritated with all the new lingo that came with its release. But Robert Bleich, of Graham, Washington, set us straight.

"Boy, am I sick and tired of the word savvy, and there is hardly any relief in sight. The person or persons responsible for all the repetition should be banished to the island of DOS until Page-Maker's program can again fit on one floppy disk. I hereby decree that after this point in the magazine, the 's' word can only be used three times. Savvy? That's once."

Actually, that's twice. Maybe we could come up with some alternatives to break up the monotony — System 7-hep?

✉ Write to Letters to the Editor, c/o MacUser, 950 Tower Lane, 18th Floor, Foster City, CA 94404, or post your letter on the MacUser Forum of ZiffNet/Mac, our on-line service.

All letters become the property of MacUser, and we reserve the right to edit any letters we print. Please include a return address and a daytime phone number.

Handsome Prints

I was surprised by your lukewarm review of the LaserWriter IIf's FinePrint technology ("Practically Perfect Printing: High-Resolution PostScript Printers," February '92, page 172). My new IIf handled a job that had an oblique 7-point TrueType font that our LaserWriter IINTX had made hopelessly muddy and that had prompted half a dozen service bureaus to tell me to get lost. The IIf printed it superbly, with almost no stair-stepping or plugging.

The new Apple toner cartridges have a finer-grain toner, although the part number has not changed. Did you use a new Apple toner cartridge in your IIf tests?

David Lerner
New York, NY

Yes, we did use a new cartridge, and we wouldn't call the LaserWriter IIf's four-mouse rating (and an Eddy Award for its big sister, the IIG) lukewarm. Granted, Apple's FinePrint improves 300-dpi text output, but our lab tests found that Hewlett-Packard's RET (Resolution Enhancement Technology) produces even-more-legible text than FinePrint does, especially in small point sizes. — TB

According to your February '92 lab report on high-resolution printers, the 1989 technology in our NewGen TurboPS/480 is apparently still superior to the technology of the products you covered. The TurboPS/480 is twice as fast as our LaserWriter NTX, and it seems to have no compatibility problems with PostScript Level 1 or TrueType. However, we can't be sure how it or its recent replacement, the PS/840, compares with other products.

Your lack of coverage of Apple's TrueType is also confusing. Which clones support it and which don't?

David Barrett
Los Angeles, CA

All the PostScript clones we've tested now support TrueType. The NewGen printer was omitted because at testing time, it didn't meet the 8-page-per-minute cutoff for that lab report, although it has been improved since then. You'll find the comparison you're looking for in an upcoming printer roundup. — TB

This and DAT

In reference to the February '92 issue, I must take issue with Steven Bobker's usually excellent Personal Best column ("Down to Basics," page 253).

First, Thunder may be a good spelling checker but it's a nightmare of a compatibility problem for most users. It's very skittish with the majority of programs I've tried. Besides, most people would prefer an excellent spelling checker and thesaurus built right in to their word processors.

Next, Bobker misleads readers when he specifically mentions that an LC with 10 megabytes of RAM is unable to use more than 8 megabytes without 32-bit addressing turned on. All Macs will be so limited.

Last, I think there are many people who would argue that there are backup media superior to DAT tape. Removable cartridges, for instance, are portable from one machine to another, use less-expensive hardware, and can rapidly access data.

Harold Goldman
Cambridge, MA

Dear Mr. Sculley ...

System 7 has its first birthday this month. Have you upgraded yet? Mr. Sculley wants to know.

Speak Up: What finally got you to take the plunge to System 7, or what's holding you back?

In January '92, we asked for some better names for the new Apple/IBM companies. Robert N. Miller, of Lewis, New York, came up with the punchy yet descriptive name "Cahoots."

Albert Su, of Irvine, California, suggests "combining Big Blue and the usual color of apples" to get "Big Red. Of course, Apple might have to obtain permission from Wrigley's."

Albert Macias, Jr., of Clifton, Virginia, who calls himself a "disciple of John C. Dvorak and Dr. Jerry Pournelle," offered his perspective on what will become of Apple in its alliance with IBM. "The IBM/Apple alliance serves only one

purpose — to fill out IBM's product line. One line of machines for business, and one line for education. Oh, the Macintosh plays some pretty good games." And so does Apple's legal department, for that matter.

When we asked readers in March what Microsoft can do to get back in the good graces of Mac users, Randy Lewis, of Palo Alto, California, sent us a list: "Microsoft has worked hard for many years to become truly user-hostile. But if it really wants to change, it could (1) charge less than \$50 for upgrades and include more than mere bug fixes, (2) follow the rules for the system rather than make up its own, and (3) get Bill Gates to refund the money I spent for Windows 2.03 and give me free Microsoft upgrades for the rest of my life for being an unwitting beta tester for that product." It may be too late for that refund, Randy; we understand that Bill has already frittered away your money on a complete set of *Inside Macintosh*.

The easiest way to create stunning charts and diagrams

Don't spend hours making charts and diagrams using a typical drawing program. The newest TopDown, version 3.0, lets you create great-looking flowcharts, organization charts, procedure diagrams and training materials more quickly and easily than ever before.

Instantly draw and update your diagrams. Connect symbols with just two mouse clicks. Connecting lines automatically re-route whenever you revise your drawing. Ten different line paths and many node connector styles provide you with maximum versatility.

Hide or show details in a hierarchy of drawing levels. TopDown has 110 different charting tools, including 12 ANSI symbols and a custom symbol creation capability. Color, text import, notecards, and on-line help make TopDown exceptionally powerful, yet easy-to-use.

Discover for yourself how easy it is to create great-looking charts and diagrams with System 7.0 compatible TopDown 3.0. Order a demo package for only \$10.00, or call us at (713) 890-3434 today.

TopDown® 3.0

new version!



(713) 890-3434

FAX (713) 890-6767

12777 Jones Road, Suite 445
Houston, TX 77070-4627

©1991 Kaetron Software Corp. TopDown is a registered trademark of Kaetron Software Corporation.

CIRCLE 97 ON READER SERVICE CARD.

LETTERS

The LC is the only current Macintosh that can run with 10 megabytes of physical RAM. However, your comment about the 8-megabyte limit is correct.

You must have an old version of Thunder. Thunder 7 and its extension have proven rock-steady for me and everyone I know. That wasn't true of older versions (Thunder II for example).

I'll take my DAT over your SyQuest any day. I have found cartridges to be unreliable (I've lost data), and at \$70+ a cartridge, that hurts. Tapes are \$12 to \$20 here. A friend just visited and brought all his data and applications (about a gigabyte's worth) on a tape that fit in his pocket. Can you imagine hauling 15 SyQuest or Bernoulli cartridges? — SB

DAT Does It

The article "Less Is More: Digital Audiotape" (October '91, page 116) is for the most part accurate, but it also had some misleading information.

The results of the complete-backup test were misleading, because typical DAT data sets are much larger than the 30-megabyte folder you used in your test. What looks like a significant performance difference with the small 30-megabyte data set will disappear as the data set becomes larger. Tecmar's software product, QTBackup, which is included with our DAT hardware, performs a unique partitioning of the DAT cartridge that stores the contents of the DAT cartridge on the beginning of the tape. The DAT drive must switch partitions as the backup starts and again when it is finished, requiring 30 to 40 seconds per switch. But QTBackup's excellent writing performance more than compensates for this time, as a larger backup set would have shown.

In addition, the complete-restore test would have been more accurate if the restore had been made to an empty disk drive to simulate the aftermath of a disk crash. Other backup programs rely on an archive file being present on the hard disk. But this file is missing in the typical complete restore from a disk crash and must be manually rebuilt. QTBackup stores the necessary archival information in the catalog partition of the DAT cartridge, so it is always available.

Paul T. Tam

Senior Macintosh Software Engineer

Tecmar

Solon, OH

We agree. Ideally, the tests would have

been performed on 100- to 150-megabyte machines. In future DAT tests, we'll use a larger data set. Your second point about backup being done after a disk crash illustrates the need for users to save an archive file. Tecmar's QTBackup software's approach of saving it on the front of the tape eliminates the separate step — a clear advantage of the software. — SS

Monitoring the Monitors

Why does the "Bottom Line" sidebar on page 164 of the article on color monitors ("Big Screens for Small Macs: Mac LC and IIs Color Display Systems," February '92, page 156) say that the SuperMac 21" SuperMatch Spectrum/8 si "was the clear winner" when on page 170, the table shows two other monitors with higher mouse ratings?

Elisabeth H. Belfer

New York, NY

The SuperMac 21" monitor clearly had the best picture of all the monitors for the si, and it should have received a four-and-a-half-mouse rating. Although the other two monitors that received four-and-a-half-mouse ratings didn't have as good a picture, they do offer such features as low price, pivot technology, and support for 24-bit color. — MF

Your February '92 lab report on color display systems was misleading when it said that Toshiba shadow-mask tubes are an "older design" than the "new Hitachi Invar alloys." Toshiba was the pioneer in adopting Invar-alloy shadow masks in our color-picture- and color-display-tube products. Also, all of our FS (flat-square) color-display tubes utilize this shadow-mask technology for improved brightness and antidoming characteristics. Both of the monitors mentioned in the article that use our tubes, the E-Machines ColorPage E16 and the Radius Color Pivot, use our FS display tubes and therefore incorporate Invar shadow masks.

Steven A. M. Vrablik

Electron Tubes and Devices Division
Toshiba

Deerfield, IL

The innovative aspect of the Hitachi tube's design that we meant to highlight was the tube's use of newer, brighter phosphors. — MF

Database Debates

I'm dismayed by the vengeance with which Sharon Zardetto Aker criticizes RecordHolder Plus in the February '92

CANVAS 3.

Fast cars. Bungee jumping. Triple chocolate cheesecake. Seems like all of life's

really satisfying stuff comes laced with

EVERYTHING ELSE THIS GOOD IS BAD FOR YOU.



danger. Or at least cholesterol. • Our drawing program on the other hand, is an exception to the rule. • A peak experience that's

actually good for you. • Good how? • Good by souping up your productivity. With Canvas, you won't need to hop around

as you work, passing your piece from program to program to get things done. And you won't find yourself face to face with significant

built in compromises, either. Because Canvas puts every tool and effect you'll need for just about any design job together in a single

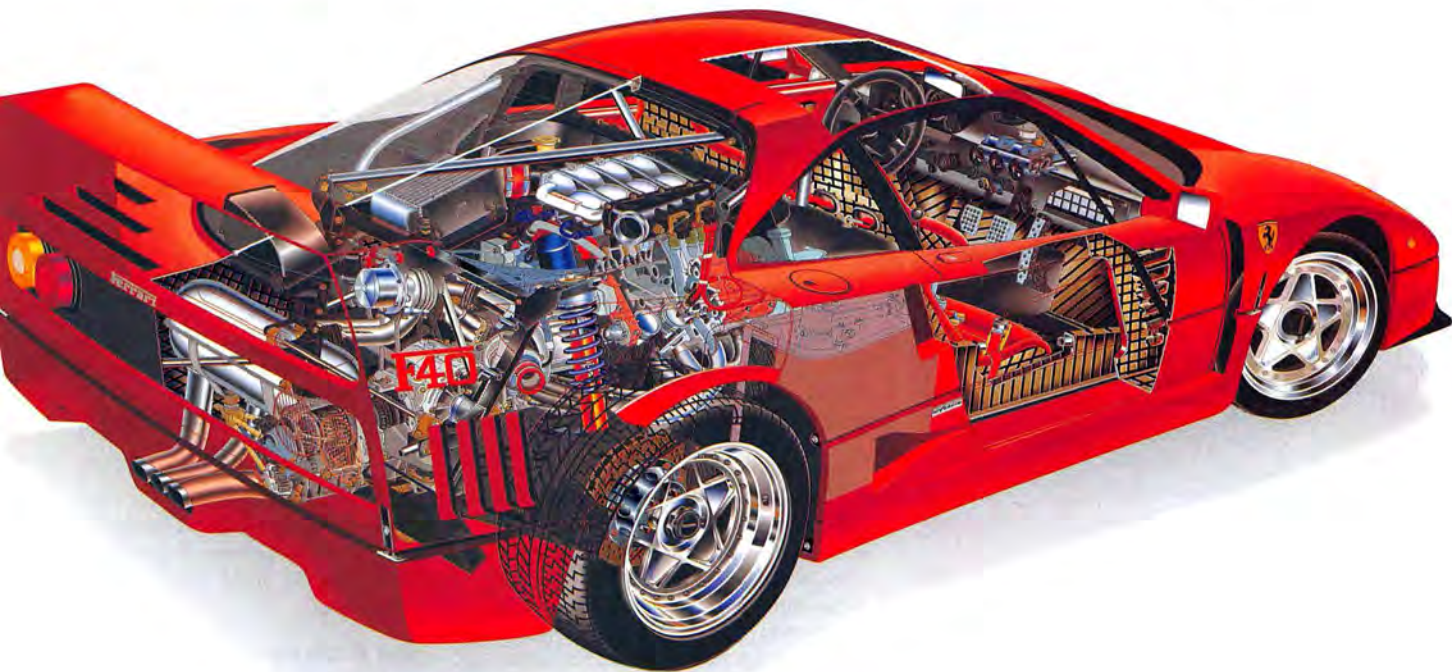
coherent package. It's all there. And it's all good. • How good? • Good enough to generate a slew of rave reviews and positive comparisons with

programs costing much more. • And good enough to capture virtually every significant industry award there is - from a MacUser Eddy for Best

Drawing Program to a MacWeek Target for Best Business Graphics Program to the Infoworld Buyers Assurance



Seal. • Canvas 3. No fat. No side effects. No shin splints. Just supreme drawing satisfaction.



CANVAS 3 PRECISION DRAWING POWER FROM **Deneba** SOFTWARE

Illustrator®, **Freehand™** and **MacDraw®** users, trade up to Canvas 3. (The Drawing Package That's Good For You). Send your original program disk along with \$149.00 to our address below. Include your MC, VISA, or Amex card number, account name and expiration date, or a check in US dollars drawn on a US bank. Add \$10.00 shipping. Offer valid in the United States and Canada. Expires on 9/30/92. Please allow four to six weeks for delivery. For more information or the name of your nearest dealer call (305) 594-6965 or FAX: (305) 477-5794. Deneba Software, 3305 Northwest 74th Avenue, Miami, Florida 33122. ©1992 Deneba Systems, Inc. Canvas™ is a trademark of Deneba Systems, Inc. Illustrator® is a registered trademark of Adobe Systems, Incorporated. Freehand™ is a trademark of Aldus Corporation. MacDraw® is a registered trademark of Claris Corporation. This entire ad was created and separated in Canvas.

CIRCLE 185 ON READER SERVICE CARD.

Documenting procedures just got easier

The fastest way to communicate a process or procedure is to show it in an easy-to-understand flowchart. FlowChart Express is the simple-to-use tool designed specifically for creating great looking flowcharts.

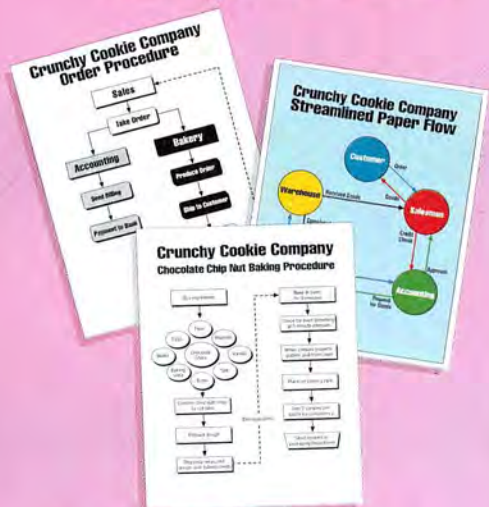
You'll find a set of standard flowcharting symbols that can be quickly placed where you want. Highlight important steps by adding shades or colors to your drawing.

You can connect symbols with just two mouse clicks. Choose from 10 different line paths. Your connecting lines automatically redraw when you move a symbol. Updating your drawings is a snap.

FlowChart Express will let you create drawings from a single page to the size of a wall. It's System 7.0 compatible and is ideal for PowerBook users.

Discover the new easy-to-use FlowChart Express. Order a demo package for only \$10.00, or call us at (713) 890-3434 to order your copy today.

FlowChart Express



(713) 890-3434
FAX (713) 890-6767
12777 Jones Road, Suite 445
Houston, TX 77070-4627

©1992 Kaeltron Software Corp. FlowChart Express are registered trademarks of Kaeltron Software Corp.

LETTERS

issue ("Everyday Databases," page 110), not conceding that the program has a single good trait.

RecordHolder best suits the needs of those who work more with words than with numbers. The interface with the index window available at all times, the ability of one field to contain 32K of data, and the easy and versatile report generator — to mention just a few — are superb features. Speed is by no means the only criterion by which to judge the efficiency of a database program.

Ms. Aker never asks what RecordHolder can do but starts with benchmarks that a priori favor FileMaker Pro. That's like blaming a poodle for not being a beagle.

George Krotkoff
Baltimore, MD

We agree that speed is not the only criterion for testing a database program (in fact, FileMaker Pro has some significant speed problems). Interface was the biggest consideration in our testing, and RecordHolder's failed abysmally. I won't comment on your choice of comparing RecordHolder Plus to a dog. — SA

I'm confused about your summary of RecordHolder Plus. Your February review portrays it as the worst flat-file-database program a person could want, with a meager one-mouse rating. But in MiniFinders in your August '91 issue, you state that it's an average flat-file database program that "has the best editing functions available." Back in 1989, you gave it three mice, and in 1987, you gave it an Eddy Award.

Did the program get worse? Did the competition pass it up? Doesn't a classic remain a classic for eternity?

David Kievman
Albuquerque, NM

Hey, "Stayin' Alive" was considered a classic when it came out. Do you still listen to disco? 'Nuff said. — RI

For Ms. Aker to say that FileMaker Pro "provides at least as much as Panorama, in a more elegant environment" indicates that she gave Panorama considerably less than a fair trial.

Panorama gives you more macro commands than FileMaker; imports much faster from a text file; and offers buttons and cross tabs, complete layout flexibility, sound as well as pictures, and lookups from several files in the same equation. It allows search on punctuation or spaces

and can search and replace individual characters, spacing, or punctuation in any field.

And isn't it better to be able to use simple or complex equations in all the ways you can use them in Panorama than to be restricted to using them only in field definitions, as you are in FileMaker?

Brooks Leffler
Pacific Grove, CA

As a Panorama user, I found the review on flat-file-database programs biased toward FileMaker. I hardly recognized the description of Panorama as the same program I use.

The review reminded me of a comparison between soccer and football. Football must be better, because I've watched it longer, it has more points scored, and it has cheerleaders.

Peter G. Guerrini
Santa Rosa, CA

I've been a fan of Panorama since its early days as OverVUE; I wasn't a fan of FileMaker until its last incarnation. They each offer a similar core of functionality and specialized extras. The program you choose depends on which extras you want and need and the price you're willing to pay in terms of money and interface. There are many things in Panorama that put FileMaker to shame, but the reverse is also true. And finally, the presence of cheerleaders is hardly one of my criteria for enjoying a sport — unless, perhaps, they are of the male persuasion. — SA

EGA Maniac

Soft PC, from Insignia Solutions, doesn't support the VGA DOS graphics standard, contrary to the reply to Christopher Gordon (Letters, January '92, page 18). With the AT module, you get 16-color EGA compatibility, not VGA — a difference of 240 colors. That's considered a big difference in the IBM world. So until Insignia gets its act together, I'll just have to use my Mac IIfx and swim in its 16.7 million colors.

Eric Claypool
San Juan Capistrano, CA

Actually, Insignia itself was the first to alert us to that error, but not the last. Who ever said that one letter can't make a difference? — JR

Paint It Black

After the excitement over my new PowerBook 170 started to wear thin, I noticed that one of the pixels on the screen wasn't black when it should have been.

This packing slip has more than your name on it.

SIVEY ANDERSON
SIVEY ANDERSON INC
210 KINGS WOOD DR
KING GEORGE VA



PACKING SLIP

Lotus 1-2-3 for only
\$325

The power of Lotus 1-2-3 designed exclusively for the Macintosh. Innovative spreadsheet capabilities. You customize the desktop, manipulate data, text and graphics. And, it's System 7 compatible.



FREE DEMOS

Call for a free "auto demo" or "introductory video" of Lotus 1-2-3 for Macintosh. There's no obligation and you can enter the Mountain Bike giveaway when you call. While supplies last.



Demos, yours for the asking.



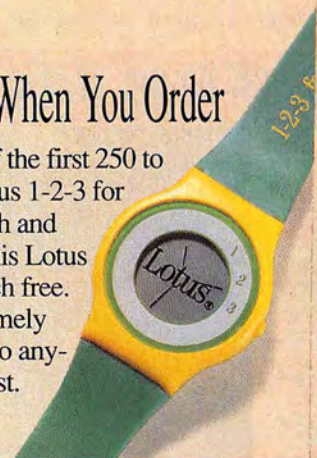
MOUNTAIN BIKE GIVEAWAY

When you order Lotus 1-2-3 for Macintosh or request your free demo you are registered to win a Mountain Bike. A great application, a great prize, no obligation. It's that easy, so call Dustin today.

Official Rules: NO PURCHASE NECESSARY. Entries will be accepted between February 10 and April 25, 1992. Winners will be drawn by random selection from names entered each day. Odds of winning will depend on the number of entries received. Total prizes awarded: 10. Void where prohibited. Limit one prize per person.

Watch When You Order

Be one of the first 250 to order Lotus 1-2-3 for Macintosh and receive this Lotus wristwatch free. A very timely addition to any one's wrist.



FREE GROUND SHIPPING

Call Toll Free from anywhere in the United States
Monday thru Friday-6:00AM to 5:00PM PST

Or Fax It!

1-800-933-8784

1-818-884-5310

20969 Ventura Boulevard, #13, Woodland Hills, CA 91364 • 818-710-9174

Power Elite

ALSOFT POWER UTILITIES

Now all the power you need is concentrated in the hands of a select few—seven electrifying, performance enhancing utilities called **ALSoft® Power Utilities™**. You'll get • **ALSoft DiskExpress® II**, the power disk optimizer • **MasterJuggler®**, the indispensable font suitcase and applications manager from the author of **SAM™** • plus a power disk partitioner • **System 7 Apple menu enhancer** • disk and directory diagnostics • a screen saver* • and even a disk activity indicator. Virtually everything your Mac needs to run faster, safer and smarter than ever. With **ALSoft Power Utilities**, all the power is right at your fingertips.

ALSoft Power Utilities



MACINTOSH SYSTEM SOFTWARE

• A L S O F T •

USA SALES 1-800-257-6381 or 1-800-ALSOFT1
FAX 713/353-9868 • WORLDWIDE SALES 713/353-4090
ALSoft, DiskExpress and MasterJuggler are registered trademarks of ALSoft, Inc. Power Utilities is a trademark of ALSoft, Inc. SAM is a trademark of Symantec Corporation. All other trademarks acknowledged. Screen saver works with Classic, LC's, Quadras and the entire Mac II family. ©1992 ALSoft, Inc., all rights reserved.

CIRCLE 169 ON READER SERVICE CARD.

LETTERS

Figuring that it was just a defect in the desktop software, I loaded my favorite painting program and blackened the entire screen. The pixel remained white! My dealer informed me that Apple wasn't taking back any PowerBook 170s that had fewer than five pixels "burned out." In fact, I was told that when Apple built the PowerBook 170 with the active-matrix display, it knew that on the average, 1.5 pixels would be inactive. This, therefore, left me with a brand-new machine that could not be returned or repaired.

Why haven't any of the reviews of the PowerBooks pointed out this major defect?

Scott Handley
Santa Clara, CA

We did the testing for our sneak preview article (Introducing: The PowerBooks, December '91, page 104) on a prerelease model of the PowerBook 170 that did not exhibit any dead-pixel problems — if it had, we would have mentioned it. Your dealer was almost right; Apple isn't taking back 170s with five or fewer voided (white) pixels that are farther than one inch apart. Apple expects some voided pixels "because of the nature of the high-end screen technology, active-matrix display" and recommends that users who have problem pixels try a lighter desktop pattern. This isn't much consolation if you work with large areas of black. — RI

Checks and Balances

I eagerly anticipated the recent release of Intuit's Quicken 3.0 (February '92, page 89). I was particularly intrigued by the CheckFree service, which lets users perform transactions electronically without ever writing a check. I thought we had finally reached another great level of personal-computing potential. However, I was dismayed to read that this feature costs about \$120 per year to use. Sure the service bureau has operational costs, but electronic checking should reduce the banks' costs, because there are fewer paper checks to process. Shouldn't they be subsidizing this service?

Evan S. Smith
Provo, UT

Your statements about CheckFree in the Quicken 3.0 review are inaccurate. Only five days are required for payment lead time, not two weeks. Also, stop payments can be made easily with five days' notice. Finally, CheckFree users enjoy

benefits far beyond the ease of handling recurring payments.

Michael M. Sapienza
Vice President, Marketing
Checkfree Corp.
Westerville, OH

Gaffe Track

Which will be greater: (1) the number of readers who write to point out that the Classic II doesn't display color (as portrayed on the January '92 cover) or (2) the number of customers who attempt to locate and purchase a color Classic II?

Bob Nichols
Kauai, HI

I vote for number 3: the number of readers who caught the upside-down Quadra in the December '91 issue (page 115). — JZ

Clarifications

In the article "Magnetic-Cartridge Drives: The Next Generation" (January '92), Table 3 on page 148 should have indicated that the Third Wave 88 SR drive uses a push-button SCSI-ID selector. Also the correct price for Third Wave's data-recovery service (Table 2, page 138) is \$65 per hour, with a one-hour minimum.

The version of TeleMagic reviewed in the February '92 feature on contact managers ("Staying in Contact," page 130) was TeleMagic 10+.

The telephone number for Hewlett-Packard's Boise, Idaho, printer group ("Practically Perfect Printing: High-Resolution PostScript Laser Printers," February '92, page 172) is (208) 323-2551.

In the description of the graphic in "When Lightning Strikes: Power Protection" (February '92, page 193), the correct brownout rates are per year, not per month.

The new address and phone numbers for Portfolio Systems, maker of DynoPage ("Quick Clicks," March '92, page 77), are 10062 Miller Avenue, Suite 201, Cupertino, CA 95014; (800) 729-3966 or (408) 252-0420.

The correct phone number for TeleTypesetting, makers of Digital Gourmet (Personal Macintosh, March '92, page 201), is (617) 734-9700. Also from the March issue: The phone number for Micro Mac in the "Recycled Macs" sidebar (page 134) should have been (714) 363-9915; the correct phone number for MacTutor ("Making Connections," page 203) is (310) 575-4344.

Application

MacWrite II
Claris Resolve
FileMaker Pro
MacDraw Pro
ClarisWorks
MacProject II
Claris CAD
SmartForm Series
HyperCard
MacPaint

Story

How FileMaker Pro makes one man seem like a cast of thousands.



Jay Nathanson wears a lot of hats. His company – Target Marketing of Richmond, Virginia – is one of the fastest growing small businesses on the East Coast. Ask Jay to explain his success and he'll give you an uncharacteristically succinct response: FileMaker® Pro.

FileMaker Pro wears a lot of hats too. Jay literally built his business with it. He and his lean, mean staff use it to quickly research, quote, present, schedule, ship, label, invoice and generate checks and correspondence for every job. The entire staff can access that data simultaneously – and effortlessly. So almost any question a customer can think of can be answered *while they're on the phone*.

FileMaker Pro even closes Jay's books every month, in 45 minutes. As you might expect, those books look pretty good.

Jay Nathanson is just one of over a quarter-million people who benefit from FileMaker Pro. You can too. To see how call 1-800-729-2292, ext. 20.

CLARIS®

Simply powerful software.™

© 1992 Asanté Technologies, Inc. All brand names and products are trademarks or registered trademarks of their respective holders. © 1992 AN/CAL.



With Asanté, it's a much more compatible world out there.

The new Asanté MacRing family lets you connect Macs to Token Ring without worry.

Whenever you need to connect Macs® to a network, it just makes good sense to come to Asanté™ - the leader in Macintosh® networking. And when it comes to Token Ring®, Asanté offers you a wide range of solutions.

We have more experience connecting Macs than anyone else in our business. So you can be sure that our Token Ring family will provide maximum performance and true compatibility.

Our MacRing™ NuBus and SE cards connect your Mac to IBM® industry-standard Token Ring networks and support all popular network operating systems. Plus the MacRing NuBus card transmits data at 4 and 16 Mbps.

What's more, MacRing cards are 100% tested before shipping and backed by a 5-year hassle-free warranty



[With Asanté MacRing cards, you can connect your Macintosh computers directly to IBM's industry-standard Token Ring network.]

and free telephone technical support.

And our MacCon+™ Ethernet® card recently earned the coveted 5-Mice Rating from MacUser® Magazine, along with the opinion that, "You can't go wrong choosing...Asanté."

Ask your reseller about the new MacRing family from Asanté. The way to make certain that the Macs you connect to Token Ring will get along with your other computers very nicely.

We'd like to remind resellers that Asanté products are available from Merisel, IngramMicro, and Tech Data.

ASANTÉ
ALL THE RIGHT CONNECTIONS™

A Conversation with Casper



If you think QuickTime is hot, brace yourself for a flood of new system extensions from Apple — including Casper, an intelligent agent you can really talk to.

Apple-watchers have been deluged with a downpour of new hardware for the last two years. Low-cost Macs. PowerBooks to go. High-powered Quadras. Easy-to-use printers and scanners.

But over the next few years, the big story from Apple is going to shift from hardware to system software. The software enhancements we've seen from Apple in the last year or two have been significant but subtle. Most of the benefits of System 7, for example, have been transparent to most users, applicable to a small number of users, or dormant while users wait for developers to release new applications that take advantage of them.

But Apple is gearing up to open the floodgates on a torrent of new system extensions. And the new capabilities they will bring will be as immediate and obvious as the profound prowess of QuickTime. Some of the big stories you'll be reading in *MacUser* in the next few months will be about

- AppleScript, a powerful language based on Apple events, which will automate and customize your applications to do precisely what you want.

- Open Collaboration Environment, a clearinghouse of tools for consolidating, simplifying, and extending all your communications services.

- Customizable interface options for the Finder (and elsewhere) that'll make things as simple or as intricate as you want them to be.

- A new imaging model that will combine elements from the worlds of typography, printing, graphics, 3-D modeling, and animation — all compatible with QuickDraw and PostScript but fundamentally different from both.

You will also be seeing some changes in the way system software is distributed and marketed:

- System extensions will be released often, thanks to a modular architecture that doesn't require Apple to hold pieces of the system because one component is behind schedule.

- Apple will adopt an à la carte strategy, letting you buy just the specialized system extensions you need.

- Certain familiar Mac functions will follow the lead of QuickTime to other platforms.

But of all the software marvels coming soon, there's one that will really make your ears perk up: speech-based input.

"Mr. Watson, come here . . . I want you." Alexander Graham Bell's urgent but polite request marked one of the most important

turning points in the evolution of spoken communications, the very first practical telephone transmission.

A few months ago, another spoken statement marked what may prove to be an equally significant turning point. The phrase was: "Casper . . . 36-point bold."

Earlier this year, Apple CEO John Sculley spoke these words to Casper, a software "agent" living inside a Mac Quadra. Casper responded instantly to Sculley's spoken commands, changing the type on-screen as directed. Like his ghostly namesake, Casper is friendly, swift, and nearly invisible, but this Casper is more than mere ectoplasm and should be materializing on desktops within a year.

The man who gave Casper the ability to hear and respond to his master's voice is Dr. Kai-Fu Lee, the manager of Apple's Speech & Language Technologies group. At a recent preview of Casper, after Sculley had knocked the socks off the crowd up by asking Casper to change fonts, Dr. Lee continued to wow the suddenly sockless audience when he instructed Casper to make a phone call, pay a bill, and — perhaps most impressively — program his VCR.

Can We Talk?

Speech recognition on the Mac is not science fiction; it's not even new. The Voice Navigator, from Articulate Systems, brought speech recognition to the Mac years ago, with its ability to translate spoken commands into actions.

What's new is three things: the accuracy and speed with which Casper performs, the kinds of tasks Casper was designed to handle, and the interface design for making users feel comfortable talking to a machine.

Apple set out to develop technology that anybody could use without having to train the system with examples of a user's particular speech idiosyncrasies — regardless of whether the speaker is male or female, speaks quickly, or has an accent.

Apple wanted Casper to understand sentences spoken naturally and fluidly, not as artificially articulated separate words. Apple needed speech recognition that doesn't force you to reroute your train of thought to think about the fact that you're using speech input or to worry about fluctuating levels of ambient noise and background sounds.

Apple also gave Casper the intelligence to understand what you're really asking for. For

example, when you tell Casper to "Call John Sculley," Casper knows that "Call" means to "look up the telephone number for the name I'm about to say, and establish a voice connection to that number." The catch is that the speaker must also

know the rules. You need to know that the correct phrase to make Casper do your bidding is "Call John Sculley," not "I need to talk to the ol' Scullmeister."

There's a trade-off between building more flexibility in to the syntax you can

use and the speed and certainty with which the agent responds. Without sufficient constraints, Casper's performance wouldn't be good enough to earn your trust.

Although Apple does plan to incorporate speech technology into the Macintosh, it really needs this technology for its forthcoming line of personal electronics, what John Sculley calls PDAs (personal digital assistants)—low-cost, vest-pocket-sized tools for accessing and organizing information and communicating with other electronic devices (everything from Macs to telephones to VCRs).

In the world of PDAs, there's no room for keyboards or mice. They're too big and too heavy and make you think too much. You need something more intimate, more off-the-cuff. Speech recognition fits the bill nicely but only if it works seamlessly and doesn't require exorbitant additional hardware beyond the power of a 68030 processor. In other words, Apple wants speech technology that will appeal to the least common denominator.

Lease Comedy Nominator

The fundamental reason computers have problems understanding free-form speech is that language is filled with ambiguities. Even a human listener hearing an isolated snippet of speech may not be able to understand it out of context.

Try this simple test: Ask a few people to read only one of these sentences aloud to you but not tell you which one they're reading:

1. The least common denominator puts man in control.
2. The lease comedy nominator puts mannequin troll.

If you could tell which sentence they were reading, it had little to do with the actual sounds they were making. It had more to do with their facial expression. If their expression was one of mild confusion, they were reading the first sentence. If they looked utterly baffled, they were reading the second.

Recognizing the actual sounds of speech is not enough for free-form speech recognition. You also need to collect and understand clues about the context of a sentence or phrase.

But at the rate speech-recognition technology is progressing, the only remaining bottleneck will soon be the awkwardness of talking to a machine. Start practicing now. Holler at your VCR, and make sure to tell your Macintosh to "Have a nice day."

Find More Customers.



Guaranteed.

There's simply no easier, faster, or more cost-effective way to find more business-to-business prospects than with MarketPlace Business. MarketPlace is so effective that if you don't find more customers in 60 days, we'll give you your money back.

MarketPlace Business is your desktop "List Factory," letting you instantly build lists for direct mail, telemarketing, market analysis and more. Choose from among 7 million U.S. businesses, using criteria you set *yourself*—like geographic area, annual sales volume and number of employees. You save money on smaller, more precisely targeted lists that you build using the most detailed industry classifications available—8-digit SIC codes. (Even the U.S. government can't give you more specific business definitions.) And your dollar goes even further with MarketPlace because you can reuse any list as often as you want for one year—at no extra charge.

You get the lists *you* want when you want them. With information like business name, annual sales and number of employees, key contact name and title, address and telephone number—the kind of information that helps you turn perfect strangers into perfect customers.

There's more: On-screen list preview. Market analysis. Instant list counts. One-step data exporting. Quarterly information updates. **But don't just take our word for it. Call us today at 617-894-4100 (x3126) and ask for your FREE MarketPlace demo diskette.**



Send me a MarketPlace information kit and a MarketPlace demo disk.

Name _____
 Company _____
 Address _____
 City/State/Zip _____
 Tel: _____
 Mail to: MarketPlace Information Corporation
 3 University Office Park, Waltham, MA 02154
 Fax: 617-894-1656 Phone: 617-894-4100 x3126

If you've been looking to increase your sales—your search is over.

Guaranteed.

 **MARKETPLACE**

CIRCLE 61 ON READER SERVICE CARD.

ALWAYS STORE YOUR VALUABLES IN A SAFE PLACE.



On Verbatim® data storage products. They start out backed by a complete Verbatim warranty. And then they get better.

For example, our DataLife® Colors disks let you color-code your files for convenience and added security.

Teflon® is a DuPont registered trademark.

Our Teflon®-coated DataLife-Plus® disks let you wipe off fingerprints, dust, even pencil shavings. Without wiping out information.

Our 5.25-Inch and 3.5-Inch Rewritable Optical Disks are virtually incapable of losing data. Plus, they both have enormous storage capacities.

And our data cartridges, high density data cassettes, data certified 8mm/4mm data cartridges, and reel tapes live up to the same impeccable safety standards we've set with our disks.

So next time, ask for Verbatim. And get the name you can't lose with.

CIRCLE 161 ON READER SERVICE CARD.

V E R B A T I M®

A print spooler is a print spooler is a print spooler. Right?

When it comes to printing in the background there are plenty of spoolers to choose from.

So why have over 150,000 Mac users chosen SuperLaserSpool?

Because it supports more printers than any other spooler?

Or because it's the only one that supports Apple[®] Image Writers[®] and HP LaserJets[™], DeskJets[™] and DeskWriters[™]?

Is it because SuperLaserSpool is compatible with many more Macintosh configurations?

Or because it's compatible with virtually every Mac application?

Because only SuperLaserSpool can spool color PostScript[®] files?

Or because it spools everything and anything faster than any other spooler?

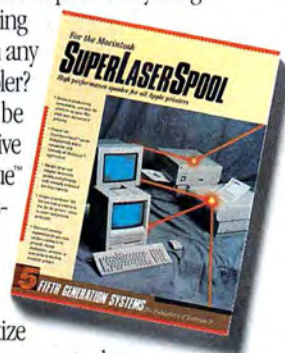
Could it be our exclusive LaserQueue[™] desk accessory that lets you preview and prioritize documents, re-route them to another printer, or print to several printers simultaneously?

How about our vaunted 24-hour toll-free technical support?

How about our one-year, money-back guarantee?

How about picking up the phone? Dial 1-800-666-2904.

It's the right thing to do.



FIFTH GENERATION SYSTEMS, INC

CIRCLE 102 ON READER SERVICE CARD.

Let the QuickTimes Roll



Apple can huff and puff all it wants, but multimedia will never catch on until the folks in Cupertino learn three simple rules.

Somebody help me. Companies are pouring a lot of money, time, and effort into multimedia, and many people are dedicating their careers to it. I'm not sure why. So far multimedia is a fad — a solution in search of a problem, and a fill without a need. Washed-up entrepreneurs have used multimedia to get a shot of venture capital, and publishers have used it to create magazines to capture advertising dollars.

Apple's love affair with multimedia doesn't help. (Apple figures that if it puts *desktop* in front of enough nouns, it's bound to find another *desktop publishing*.) Kaleida, the multimedia company Apple created with IBM, is proof. The company's headhunter called me for suggestions for a CEO after it was formed. Am I missing something? Don't most entrepreneurial companies start with at least a product or a CEO?

Multimedia is good for schools, kiosks, and training stations. I don't believe, however, that it will find its way into mainstream computer use for another ten years, if ever. This column explains why and some things we can do to shorten the time.

Multimedia Is Impractical. Using multimedia in presentations requires hardware that is too expensive for most people. For example, I speak frequently — five to ten times a month — at cost-almost-no-object industry conferences and company meetings as well as at user-group meetings and not-for-profit organizations that can barely afford to rent a room.

I thank my lucky stars if the Kodak carousel slide projector I requested is there. I get down on my hands and knees and thank the Lord when a remote control is there and the bulb isn't burned out. Yet the multimedia demogods would have you believe that all speakers can use multimedia products to enhance their speeches with video, animation, and special effects.

Wake up and smell the coach-class ticket. Not everyone travels with three engineers to set up a 16-megabyte Quadra and \$1,000-per-day color projector as John Sculley does. (I don't even have a color monitor or a CD-ROM drive.) Until speakers can depend on having the necessary equipment at the Podunk Elementary PTA meeting, multimedia is no more than an interesting trade-show diversion.

Multimedia Is Boring. Once, in a discourse about the shortcomings of multimedia, Jean-Louis Gassée asked me — as only Jean-Louis can — if I ever watched a videotape more than

once. His point is well taken. My answer was, "Very seldom, if ever." I don't even watch such fascinating ones (to me) as the Wings series about fighter aircraft. Let's face it: We generally *rent* videotapes instead of buying them and the ones we buy, we watch only once or twice.

Multimedia is boring because it lacks soul. It's difficult to define soul without using examples. Breitling watches have soul; Seiko watches do not. Button-fly 501 jeans have soul; Guess? jeans do not. Porsche 911s have soul; 928s do not. Mac Classics have soul; LCs do not.

So far multimedia doesn't have soul because product development usually means forcing existing data into a new medium. For example, most multimedia involves taking books, video clips, and large databases and adding a thin layer of navigation buttons and icons. This is the equivalent of broadcasting black-and-white photographs on color television. Thus, multimedia is eye candy that produces an initial rush but lacks long-term nutritional value. It's the difference between the latest Michael Jackson video and *Citizen Kane*.

Multimedia Is Overhyped. Multimedia is being positioned as the next paradigm-shifting, wealth-creating, earth-shattering technology. Expectations are so high that disappointment is inevitable. When I look at CD-ROMs and animation clips, all I can think is, "This is what all the hype is about? But what can I do with this?" (I dare not say this out loud, for fear of offending people.)

In the same meeting in which Jean-Louis pointed out that people don't watch videotapes over and over, he also explained the difference between a tool and a solution: A drill is a tool; a hole is a solution. Because a drill (like a personal computer) is a tool, it is used over and over to create more solutions. Because a hole is a solution, you stick a dowel through it once and go on with your life.

For multimedia to succeed, it must be a tool, not a solution. It will be a tool when mere mortals can use it the way they use word processors, desktop-publishing programs, and spreadsheet applications. This day is not far off — take a look at products such as MacroMind•Paracomp's Magic. To be a tool, however, multimedia must produce solutions that are practical — that is, solutions that users can use for sales presentations, speeches, and meetings in any small town. That's still a long way off.

LIVE RECKLESSLY.

With Symantec Anti-Virus for the Macintosh keeping watch, you can leap from disk to disk and file to file, fully protected.

Life on the Mac is a breeze when you use the best-selling, highest-rated virus detection, protection, and repair program. That's because SAM 3.0 does more than stop every single Macintosh virus known today. It also seeks out anything even resembling virus-like behavior — and stops it cold — before it has a chance to corrupt your data.

All, without lifting a finger. That's because once installed, SAM keeps constant watch over your system. Giving you the freedom to dive into your work with reckless abandon. All for just \$99.* Call now, 1-800-343-4714, x 606 G for complete details.



SYMANTEC.

In Europe, call 31-71-353111. In Australia, call 612-879-6577.

*Suggested retail price — only in U.S.A. SAM 3.0 is a registered trademark of Symantec Corporation. ©1992 Symantec Corporation.

GUY KAWASAKI

A Bitter Bill to Swallow

As you can see, I had multimedia all figured out. Then I heard that Bill Gates, demigod of Microsoft, had funded a multimedia company and that he was buying the rights to electronic images of artwork. Had Billion-Dollar Bill burst a blood vessel in his brain? Had I missed multimedia's magnificent market potential? Holy cow, where had I gone wrong?

Then I remembered that I was one of the many people at Apple who thought that the LaserWriter would never fly. (Believe me, I wasn't alone.) I've concluded that I'd better jump on the multimedia bandwagon in order to save face (this is a big deal to Japanese people) and not be left behind in the '80s.

I'm an upbeat kind of guy. I may not believe in multimedia right now, but I know what has to happen to improve the situation. Here are three guiding principles to help make multimedia into something real, useful, and profitable:

More Is Not Better. The availability and ease of integrating video, photographs, and special effects seduces many people into creating God-awful, contentless multimedia presentations. The point of presentation is to *communicate*, not to *impress*. Most of the time, multimedia defeats communication: If it's dazzling, the medium overpowers the message; if it's lousy, people won't pay any attention.

As the old Italian saying goes, "Just because you own a red Ferrari doesn't mean you have to drive it every day." People using multimedia should start from the intended message and work backward instead of starting with the technology and making the message take advantage of it. Frankly, the best speakers don't need any media; they paint pictures with their words. A good rule of thumb is, "The more speakers use multimedia, the less they have to say."

Data Is Not an End. Accumulating data and enabling people to click on buttons to see it doth not a product make. (Maybe it can make an educational product, because anything is better for kids than shoot-'em-up video games or crack.) The development algorithm of many CD-ROM companies is, "Let's collect a lot of images, press them onto the disc, and let people click around."

I'd like to see someone "author" a CD-ROM disc — to take data and forge it into something with structure, style, and personality. I want to feel the way I do when I read a good book — that someone went

I remembered that I was one of the many people at Apple who thought that the LaserWriter would never fly.

through a great deal of trouble to come up with a concept, develop a framework to communicate it, and sweated the details. I don't want random access to data; I want to feel the passion of an author's vision.

This is the test: Can you recognize the author of a CD-ROM the way you recognize a book by John McPhee? Or is the CD-ROM data slapped onto a disk? Products from Voyager, such as its CD Companion Series and Expanded Books, are a nice start down this path of truly authored multimedia.

Never Expect People to Use What You Don't Use. I know an executive of a company that's owned by General Motors. He was forced to sell his BMW and get a General Motors car. He bought a Lexus for his wife, however. When he took me to dinner, guess which car he drove? I'll give you a hint: It was built by a company that is relentlessly pursuing perfection, not flying to Japan with George Bush to beg for business. He doesn't expect me to buy a General Motors car.

I saw a presentation about QuickTime by an Apple employee. To my amazement, the first 75 percent of his presentation was a series of static Persuasion screens containing bulleted text items. No video. No motion. No integration among applications. And God knows, no demo. He didn't even use "builds" for his bullets. If multimedia is so great for speakers, why was he using *monomedia*?

What's the Use?

I hope this column helps companies and people involved in the multimedia market. I'll be attacked by multimedia gurus and entrepreneurs who'll label me an ignoramus. But I don't think I'm wrong. Just because they (and some venture capitalists) think something is neat doesn't make it useful.

In a rare moment of humility, however, I admit that I thought desktop publishing was a fad for a niche market. I acknowledge the usefulness of multimedia for education, but now the challenge is to make multimedia even greater and let the QuickTimes roll. ☞



PostScript is a registered trademark of Adobe Systems, Inc. Macintosh is a registered trademark of Apple Computer, Inc. UNIX is a registered trademark of AT&T.

This is what you get
out of a \$4999,
plain paper, 300 dpi,
PostScript language
compatible printer.



Personal ColorPoint is a trademark of Seiko Instruments USA Inc. © 1991 Seiko Instruments USA Inc. All rights reserved.

Then again, so's this.

The choice is yours. You can stick with plain old black and white laser printing. Or you can pick the new Seiko Instruments Personal ColorPoint printer, and get rich laser-quality color documents.

You'll get sharp 300 dpi images on laser plain paper and transparencies. Speedy RISC processing. 100% PostScript language compatibility. And the ability to connect to Macintosh, PCs, and UNIX workstations simultaneously.

All for a monochrome price.

Which means switching to color is a black and white choice. To find out more call 1-800-873-4561 or 1-408-922-5900, department SI-59.



Introducing the Personal ColorPoint printer.

SII 
Seiko Instruments

MacWeek & MacUser's 1991 Utility Product of the Year!



Now Utilities

The Ultimate System Enhancement Collection

What did it take to get the editors at *MacWeek* and *MacUser* to agree on the best Macintosh utility product?

Unprecedented performance, compatibility, and value. In this case, a collection of 10 utilities that does for System 7 what products like SUM and Norton do for hard disks — only more so. As *MacUser* put it, "Now Utilities will make your Macintosh faster, easier, and more fun to use." For example:

- **StartUp Manager™** provides complete extension management
- **Super Boomerang™** finds files and folders instantly
- **WYSIWYG Menus™** groups fonts in their own typefaces
- **NowMenus™** makes the Apple Menu hierarchical
- **AlarmsClock™** displays the time & reminders in the menubar
- **NowSave™** automatically saves files to prevent data loss
- **Screen Locker™** keeps confidential information confidential
- **MultiMaster™** launches applications and files
- **Profiler™** analyzes system configurations
- **DeskPicture™** puts color and B&W pictures on the Desktop

In fact, every utility in the collection is the best of its kind. All of the utilities in the collection are also designed, tested, and guaranteed to work together — and with anything else your customers may have...even System 6. No wonder *MacUser* gave it a perfect five mouse rating and called it "a must-have for experienced users and novices alike."

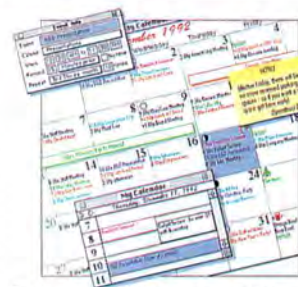


NowMenus saves you a lot of mousing around by creating submenus up to 5 levels deep for anything you put in your Apple Menu items folder — even aliases and other folders. It also pops up the menubar wherever you click your mouse



Super Boomerang lists your most frequently used files and folders in all Open and Save dialog boxes and in the Apple menu. It also lets you find files by name or content...even if they've been compressed (a file name search on a 100MB hard disk can take only 3 seconds — without requiring an index)

MacWeek & MacUser's 1992 Network Product of the Year?



Now Up-to-Date

The only calendar that keeps your appointments and your associates up-to-date — whether you're in the office, at home, or on the road

What will it take to get the editors at *MacWeek* and *MacUser* to agree on the best Macintosh network product?

Perhaps *Now Up-to-Date™*: the only Macintosh application that keeps your appointments and your associates up-to-date — whether you're in the office, at home, or on the road.

Organize Your Appointments *Now Up-to-Date* can schedule a meeting to occur at 9:00AM on the first Tuesday of every month and have it automatically appear on your associates' calendars. Scheduled events can be private, shared, or restricted (i.e., only available to people with the correct password.)

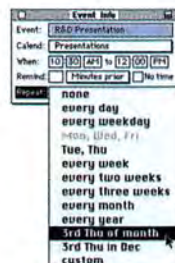
Remember Your Meetings *Now Up-to-Date* keeps track of all of your meetings and appointments, so you don't have to. It can also provide advance warning of upcoming events to ensure everyone shows up on time.

Mobilize Your Office *Now Up-to-Date's* versatile printing options include support for all major appointment books, so you can take your calendar on the road. If you own a PowerBook you'll appreciate the fact that *Now Up-to-Date* doesn't require you to be connected to a network to see your schedule. For that matter, you don't even need to own a network: *Now Up-to-Date* makes a great single user product, too.

Isn't it time you got up-to-date?



Now Up-to-Date's unique 'Public Calendars' coordinate your schedule with your associates' automatically, so your left hand knows what your right is doing



Now Up-to-Date can repeat events (and their reminders) with whatever frequency you may desire

With all this attention from the press it's not surprising that *Now Utilities* is already one of the best-selling products on the Macintosh. *Now Up-to-Date* looks to be just as popular. Call Now at **1-800-237-3611** to learn more about both of these great products, and how they can help you get more out of your Macintosh.

**Now
Software**

Control Freaks



Want to know how you'll tell your computer what to do in 2015? The writing's on the wall — and it's a script.

Sarah Elizabeth Wadsworth (not her real name) just doesn't get it.

Sarah's the Macintosh guru for a large pharmaceutical company. When people in the company have questions about their Macs, they go to her.

When David (his real name) visited the company recently to campaign for user scripting among the employees, people pointed Sarah out to him. Yes, Sarah admitted, she supposed that she was the most advanced Mac user in the place. People expected her to solve their Macintosh problems and to evaluate new technologies for the Mac. But Sarah wasn't about to provide the endorsement that David was looking for. Scripting, she pronounced, was something she would just never do.

I don't know Sarah, but I know enough about her, and about Macintosh gurus in large companies generally, to be pretty sure that she's wrong about scripting. So do you. Let's see.

We know that she's been using a Mac for at most eight years, because the Mac is only eight years old. She's probably been using it for considerably less time than that — six years of experience is probably a generous guess. On the one hand, if she's the company's Macintosh guru, she can hardly be a new user; on the other, there weren't a lot of Macs in big companies before the Mac II was released five years ago.

A Mac guru in a large company is likely to be a relatively early adopter, and early adopters of new technology tend overwhelmingly to be young. Sarah is probably a little shy of 40 today. Say 39.

Even if there is still Social Security when Sarah turns 62 in 2015, do we think that this computer-savvy woman is going to be content to sit and knit in the 21st century? No, like many 21st-century women, Sarah will be using a personal computer several hours a week. Being a very experienced computer user, she'll always sit a good arm's length from the screen, so she'll no doubt live out her allotted three-score-and-change years.

And she claims that never in the next 30-some years will she use a scripting system? Hogwash. Her 6 years of experience with this pimply adolescent technology is no basis for projecting so dogmatically into the next three decades of technological development. Not only will Sarah be scripting but so too will a lot of other people who don't think they will. Scripting is the wave of the future.

Scripters Rule the World

User scripting is not a new application niche as is desktop publishing or multimedia authoring. Instead, it's a completely new approach to controlling a computer. Someday, everyone will be scripting. Script writers will rule the world. How's it going to happen?

When Apple started marketing the Mac, it made a distinction between the techno-weenie computer users of the pre-Macintosh age and "the rest of us." It was a good marketing strategy for its time and one that seemed in keeping with the slightly different distinction between programmers and users. But that "computer for the rest of us" slogan ought to be retired now, because it imposes a division where there ought to be a continuum or at least a lot of options. Programming and what the rest of us do are just two of many ways to direct a computer.

One reason I championed HyperCard when it first came out was that I believed that we needed more than these two ways (using and programming) to direct the machine. Scripting is one more way, and as such, it represents the beginning of the end of the user/programmer dichotomy.

I've written here before about UserLand Frontier, David Winer's system-level user scripting language. Frontier is still the only game in town, although Apple is again talking openly about its long-delayed scripting language, AppleScript. And existing tools such as HyperCard and QuickKeys can do some of the things a scripting language can.

But QuickKeys is still an extension of the existing language of clicks and drags rather than a language unto itself, and HyperCard restricts its scripters to the program's own environment rather than the whole Macintosh desktop.

With Frontier, a scripter can type in a command such as `clock.now()` to check the time and date or key in a few more lines to create a script that deletes all Word backup files, backs up a hard disk, collects icons from applications, counts files, finds locked folders, or creates aliases for all applications on a system and collects them in one place.

That's Frontier as a system-scripting language. It also serves to drive applications. For example, version 4.2 of PageMaker is Frontier-friendly, and Aldus and UserLand have released an install file for Frontier that adds verbs to its language for more than 200 PageMaker operations. This means that a scripter

BETTER PRINTING ON OVER 900 PRINTERS!

GDT's printer drivers reveal the hidden capabilities of virtually any printer and make it fully compatible with your Mac.

GDT drivers have the most features; here are some of them:

- Text and graphics support along with access to multiple bins, color, internal fonts, custom paper sizes, etc. for most printers.
- Reduction and enlargement from 20% to 400% in 1% increments.
- Smooth 90° rotated text.
- Print on both sides of a page with Even/Odd pages feature.
- Smoother greyscale patterns.
- Fastest QuickDraw™ drivers you can select in the Chooser.
- Smarter and faster label and forms printing without jamming.
- Compatible with System 6 and 7, TrueType™, Adobe Type Manager™, SuperLaserSpool™, NetSerial™, etc.

PowerPrint™

Enables Macs to print to over 850 non-Apple printers. Great for users who already have or want to use less expensive, better dot matrix, inkjet, and laser printers. Also ideal for PowerBook users who want access to high quality portable printers or just the ability to walk into any office and print to virtually any printer. PowerPrint comes complete with a high speed, easy to use cable.

BetterWriters™

Dramatically improves printing speed and provides LaserWriter-like features for serial Apple ImageWriter® I, II, and LQ.

Also provides powerful enhancements for StyleWriter™ and DeskWriter™ users.



GDT Software Inc.

4664 Lougheed Highway, Suite #188
Burnaby, BC Canada V5C 6B7
604-291-9121 604-291-9689 (fax)
800-663-6222 (orders) AppleLink:GDT.MKT

All product names are trademarks or registered trademarks of their respective holders.

CIRCLE 18 ON READER SERVICE CARD.

MICHAEL SWAINE

can write a script that automates the process of producing business cards, for example, or that pulls together data from a spreadsheet, word-processing document, and EPS-supporting painting program to produce a publication.

More interestingly, as applications begin to support System 7's interapplication communication more seriously, Frontier scripters will be able to wire together collections of applications to do very specialized things — things that have to do with the elements of their particular jobs and work methods.

But scripting as we know it today is still a compromise between programming and using. It doesn't have to be that way, and we can see some hints about new ways to direct computers.

Beyond the Mac User

The difference between programming and mousing around on the desktop is not fundamentally one of commands or command syntax. Working on the Mac desktop means learning a hundred or so commands and their proper use. True, the commands happen to be actions, are highly mnemonic, and have a very natural and consistent syntax, but these things can be true of any programming language. The "language" Mac users use to direct their machines is a highly visual direct-manipulation language, whereas most Macintosh programmers use a text-based language. But this is an arbitrary difference. There are text-based user interfaces and visual programming languages.

So what does distinguish programming from mousing around on the desktop? It's the objects you manipulate. Users compute account balances; programmers add up floating-point numbers. Users move file icons into folders; programmers process window-update events. Users select paragraphs; programmers twiddle cursor resources.

In other words, it's not the programming language or its syntax that separates programmers from the rest of us; we all use a kind of language of commands with a well-defined syntax to direct the machine. What separates the programmers from the users is the things they manipulate and, consequently, the things they have to know about. Programmers work on computers; users work on real-world tasks.

I've seen both the programmer's world and the real world, and frankly, the real world is more interesting.

From the point of view of the hardware,

**Someday, everyone
will be scripting. Script
writers will rule the
world.**

the "real world," or the user level, is more abstract, and from the user's point of view, it's more focused. But we have by no means exhausted the possible levels of abstraction or focus with these two traditional methods of directing the machine. As hinted at in the mention of wiring applications together to do something specialized, there are levels of abstraction or organization beyond what users deal with today. A scripter wiring together various applications to manage all aspects of a task is working at a higher level than is the user who plugs away at the applications one at a time, and the superuser who uses the wired-up tool is working at a higher level yet.

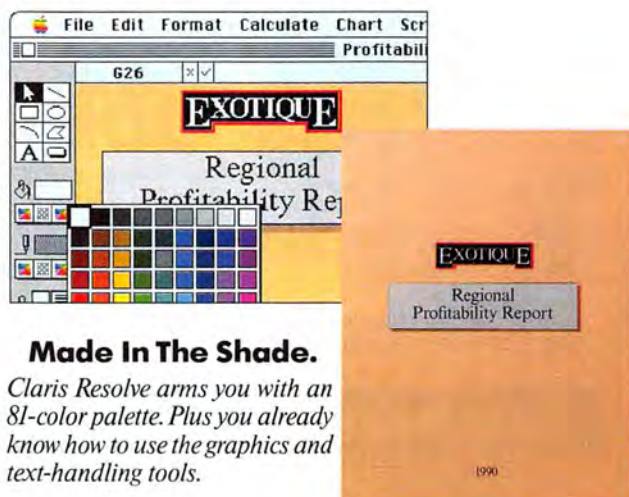
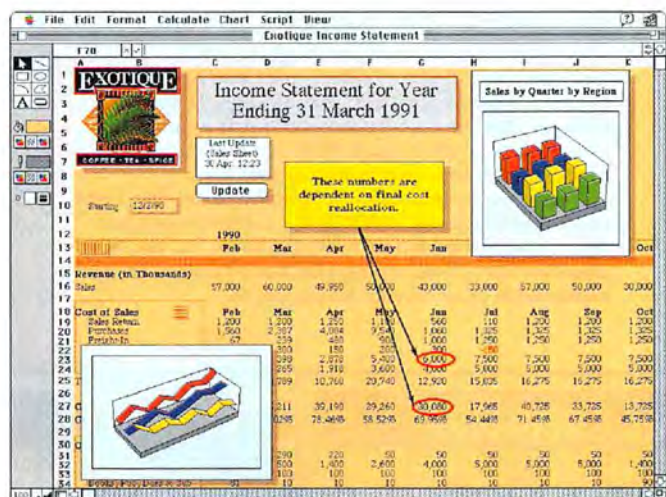
These higher levels of abstraction get you working closer to your real task. Another way of saying this is that they represent a step in the direction of specialization, which means narrow markets, which means that commercial software companies can't afford to build such specialized applications. What's necessary is the empowerment of the people who perform the tasks; they are the ones who will have to construct the tools of the future. People such as Sarah who now think of themselves as users will need to customize their tools for their purposes, and the ability to do this is currently called scripting.

What I'm saying is that scripting and a new class of people called scripters are going to be necessary for the development of the next level of software.

But I expect the look of scripting to change radically in the coming years. I expect to see more tools that bring a programmer-like degree of control to a world very far from the one programmers work in, as far beyond applications and desktop icons as applications and desktop icons are beyond the bits and bytes of programming. I expect object-oriented operating systems to make it easier to represent within the computer the real components of a job and to build on such representations new tools for doing the jobs. And I expect to see users become more sophisticated, not in their understanding of the computer but in their understanding of their work.

And I expect Sarah to become a scripter. Like the rest of us. ☺

The only thing missing from our new spreadsheet is the learning curve.



Made In The Shade.

Claris Resolve arms you with an 81-color palette. Plus you already know how to use the graphics and text-handling tools.

Get a Billion for only \$249.

A billion cells, that is. Plus 145 advanced business functions. And it's all readily accessible.

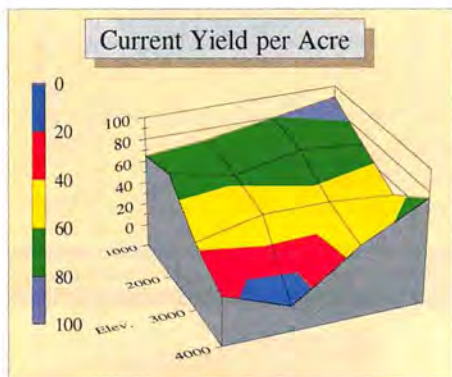


Chart Your Success.

Charts and graphs are unbelievably easy with Claris Resolve. Especially with 25 different styles to choose from.

The System 7 Spreadsheet

Get a stronger Resolve for only \$249.



Finally, you don't have to be a rocket scientist to use a spreadsheet. All you need is new Claris® Resolve™ 1.1.

It's the only spreadsheet you already know how to use. Because its tools and commands are familiar to anyone who's ever used a Macintosh.

Which means features that let you get results right out of the box. Like one-step charting. Instant zoom-in and zoom-out. Automatic scripting. Context-sensitive help. A built-in spell checker. It's even easy to import your existing spreadsheet files.

Still, Claris Resolve 1.1 has more than enough features to inspire any power user. For example, there are 145 built-in functions for solving any business problem; 25 charts and graphs for making any audience sit up and take notice; and the kind of performance that makes Resolve among the fastest spreadsheets anywhere.

Resolve also takes full advantage of System 7. So you can effortlessly combine its power with other applications.

Given all this, it's not surprising Claris Resolve earned 4½ mice from *MacUser*. What is surprising, though, is that it's available for only \$249 through June 30, 1992.

Go straight to your phone and call 1-800-3CLARIS for your nearest authorized Claris dealer.

And get the only spreadsheet that won't make your head spin. Because we left out the learning curve.

© 1992 Claris Corporation. All rights reserved. Promotional offer good in U.S. only, expires 6/30/92. Special offer for owners of Microsoft Excel, Lotus 1-2-3, Informix Wings, and Ashton-Tate Full Impact: call 1-800-544-8554 to trade up for \$99. Claris is a registered trademark and Resolve and Simply Powerful Software are trademarks of Claris Corp. Apple logo and Macintosh are registered trademarks of Apple Computer Inc.

CLARIS™

Simply powerful software.™

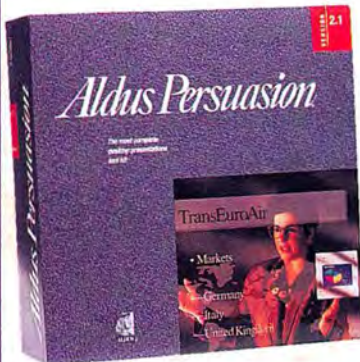
The Mac Zone
Established 1986

Se Habla Español

At the Mac Zone, we provide you with more than just great prices and the widest selection available—we have the service and support to keep you coming back.

Our commitment:

- Knowledgeable sales advisors
- Personalized service
- Hassle-free ordering
- \$3 overnight shipping
- Canadian customers' orders, in most cases, delivered in 24 hours



Aldus Persuasion V.2.1

\$324

Need to develop presentation graphics? Let Aldus Persuasion 2.1 do all the work. Just select one of the predefined templates (or create your own), and type your ideas into the outliner. Persuasion automatically prepares your slides from the outline. Aldus #0346 ✓✓

DO-IT-YOURSELF COLOR!

Color. It turns dull into dazzling. It turns prospects into customers. It turns heads.

Not long ago, if you wanted color you had to send it for outside processing. It took days. It cost a fortune. And you never knew what it would look like until you got it back. Now it's easy to do ultra-professional, low-cost color layouts and transparencies in house—all you need are the right tools. On this page you'll find a selection of the finest color production tools available. At the Mac Zone we carry everything you need to start turning heads with your own in-house color.

NEW COLOR PRESENTATION ESSENTIALS FROM NEC TECHNOLOGIES



NEC Colormate PS/40 Color Printer

\$4899

Make your documents come alive with the NEC Colormate PS color printer. This genuine Adobe™ PostScript™ color printer uses advanced thermal transfer technology to produce vivid, richly saturated colors on paper or transparencies. Built-in SCSI interface. 17 Adobe fonts. 4Mb memory. NEC Technologies #1031 ✓



\$794 MultiSync 4FGx 15" Monitor

Completely redesigned from the inside out, the new MultiSync FG monitors give your Mac brighter, sharper, more accurate images. The 4FG, 5FG and 6FG monitors feature AccuColor Control System which provides unprecedented color accuracy, nothing short of dazzling. Packed with state-of-art extras like FullScan capabilities for 36% more screen display. NEC Technologies #7143 ✓✓

3FG 15" #7144\$694
5FG 17" w/AccuColor #7399 ...\$1529
6FGx 21" w/AccuColor #7182. \$3049
Mac24 MacFG 24bit
Interface Card #4985\$1694

ALDUS FREEHAND NOW SUPPORTS YOUR FAVORITE GRAPHIC TABLET

✓ = System 7 Compatible ✓ = Money Back Guarantee

Wacom SD 510-C 6"x9" Tablet

\$519



Increase your graphics quality and productivity with the SD 510C 6x9 Tablet. Its cordless and batteryless cursors and styli add a new dimension to computer graphics. Use the feather-light styli to paint, draw, trace, point, open and close—all at a natural speed without the limitations of conventional input devices. Wacom #3496 ✓

Aldus FreeHand V.3.1

\$394

Aldus FreeHand combines an elegant user interface with exceptional depth of function. The result: an easy-to-use tool for creating professional-quality graphics. Aldus #0333 ✓✓



DPI Drives: Don't Settle For Less!

A Top-Quality Drive At An Amazing Price

The Mac Zone proudly presents a new line of high-quality, low-priced hard drives, the DPI series. Our DPI removable was given top honors by BMUG (Berkeley Macintosh User's Group). All DPI drives are built using only the finest components and drive mechanisms. Each drive is carefully tested for over 24 hours to assure your complete satisfaction. You will not find a better drive for the money.



All DPI drives are covered with a complete 60-day money back guarantee. If, for any reason, you are not completely satisfied with your drive, call us for an RMA number and return it to us for a full refund.

52 Mb Quantum External

\$359



Our 52 Mb Quantum is fast, reliable and attractively designed. Some of its features include: 3.5" LPS drive type, an average access time of less than 17 milliseconds and a throughput speed of from 2 to 4 Mb per second. DPI #4880 ✓



SyQuest 44 Meg Removable Cartridge

\$69

With removable SyQuest cartridges your storage capacity is virtually limitless. Lifetime warranty. Syquest #2183 ✓

Part #	Formatted Mb	Drive Type	Drive Mechanism	Access Time	Throughput Mb/Sec	ZONE PRICE	Cost/Mb
4451	45	5.25"	Syquest	19	1.2	\$549	12
4880	52	3.5" LPS	Quantum	17	2.0-4.0	359	7
4886	88	5.25"	Syquest	19	1.2	699	8
4876	104	3.5"	Connor	25	1.66-2.5	469	5
4881	105	3.5" LPS	Quantum	17	2.0-4.0	499	5
4882	200	3.5"	Quantum	15	2.0-4.0	849	4
4883	320	3.5"	Seagate	14	4.0-5.0	1599	5

MACTURBO MODEMS

MacTurbo 2400 Mini Modem

\$89

Our MacTurbo modem has all the features you would expect to find in modems twice the price—and measuring just 6"x4" it's compact enough to easily tuck away in a briefcase. An eight-light status panel keeps you informed as to its operations. MacTurbo #0408 ✓



Courtesy of Apple Computer, Inc.
John Greenleaf Photo

ENERGIZE YOUR MAC... AT A SUPER LOW PRICE!

- Overnight Delivery
- Free Technical Support
- Top Quality SIMMs
- Free Installation Guide
- 30-Day Money-Back Guarantee
- with your order

Macintosh FX Owners

Need more power for graphics? Power up to 20Mb by ordering 4x4Mb FX SIMMs.

#3585 16Mb upgrade kit \$759

Quadra Owners

Feel the power! Take your 4Mb Quadra into the next dimension with 36Mb. Order 8Mb SIMMs (must be installed in sets of 4).

#0848 8Mb SIMM call for latest low price.

Or, for the power hungry user, move up to an unbelievable 68 Mb (must be installed in sets of 4).

#0849 16Mb SIMM call for latest low price

SI Owners

Upgrade Your 1Mb IIsi to 9Mb. Order 2Mb (QTY 4) IIsi SIMMs module.

#3936 8Mb upgrade kit \$389

LaserWriter NTX Owners

Need more memory for your fonts? Upgrade now by ordering SIMMs 1Mb NTX. (must be sold in sets of 4)

#03586 \$49 per Mb

Mac Plus and SE Owners

Upgrade your Mac Plus and SE. Order 1Mb SIMMs (80Ns) Lifetime warranty.

#3428 2Mb upgrade kit \$42 per Mb (sold in pairs)

LC Owners

• Upgrade Your 2Mb LC to 10Mb. Order two 4Mb SIMMs.

#3976 8Mb upgrade kit \$317 per pr.

• Welcome to the wonderful world of color. Work with 256 colors. Order LC Video RAM-512K. Upgrade kit.

#4608 \$89

Classic Owners

Attention Classic owners! Upgrade from 1Mb to 4Mb. Order Applied Engineering MacRAM Classic 1Mb Upgrade to reach 2Mb.

#3824 Expansion board with 1Mb \$78

Then take the next step and go to 4 Mb by ordering 1 Mb SIMMs (80ns).

#3428 2Mb upgrade kit \$42 per Mb (sold in pairs)

★ NEW PRODUCT ★



MacTurbo 24/96 Mini Fax/Modem

\$189

Our MacTurbo 24/96 Group III Fax Modem gives you both fax and modem for the price of most data-only modems. It features 9600 bps send rate, full-featured 2400 bps data modem, full Hayes compatibility and compact design. MacTurbo #0977 ✓

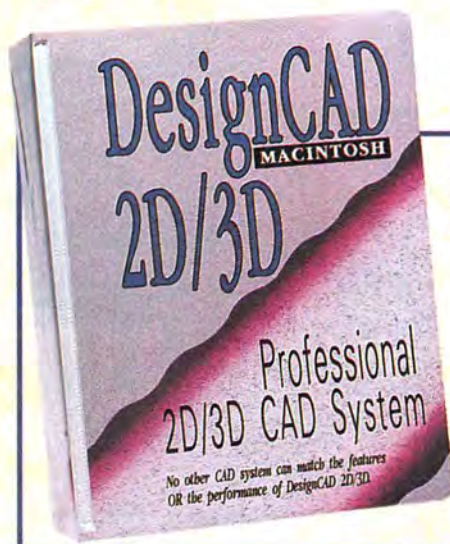
LIFETIME WARRANTY

Design • Design • Design

The Tools You Need To Do It Right

CAD/DESIGN

☐ = System 7 Compatible ✓ = Money Back Guarantee



Abracadabra

- 3609 Design Your Own-Architecture ... 64 ✓
- 3610 Design Your Own-Landscape ... 64 ✓
- 3611 Design Your Own-Interiors ... 64 ✓

DesignCad 2D/3D V3.0

\$159

DesignCAD provides the speed and accuracy necessary to manipulate complex two- and three-dimensional designs. File support for DXF, IGES, XYZ, PICT, RIB. Designed for engineering (mechanical, architectural & electrical), animation, desktop publishing and multimedia. DesignCAD, Inc. #4180 ✓

Claris

- 3693 Claris CAD 2.0 644 ✓

Design CAD, Inc.

- 4180 DesignCAD 2D/3D 159 ✓

Generic Software

- 0141 Generic CAD Upgrade 98 ✓

GraphSoft

- 3540 MiniCAD + 3.1 594 ✓

- 4830 Blueprint 2.1 218 ✓

Innovative Data

- 0429 MacDraft 2.1 278 ✓

- 2015 Dreams 1.1 399 ✓

Paracom

- 4498 ModelShop II 549 ✓

Specular Technology

- 0815 Infini-D 3D Modeler 648 ✓

Strata

- 4088 Strata Vision 3D 2.0 628 ✓

DESIGN HARDWARE

Advanced Vision Research

- 4552 AVR 8000/Cix Image Scanner 1549 ✓

Dest

- 3929 Scanner with Recognize OCR ... 685 ✓

Kurta

- 4316 ADB 12x12 Bundle Cordless 339 ✓

- 3011 ADB 12x17 Tab w/Pen, Cursor .. 628 ✓

- 3009 Cordless ADB 8.5x11 Bundle ... 304 ✓

Logitech

- 2561 ScanMan Mod.32-Digital Drkrm295 ✓

Marstek

- 4593 Marstek Langelo Color Artist 499 ✓

- 4592 Mac 800 Scanner 279 ✓

Microtek

- 0370 Microtek Scanmaker 1850S ... 1898 ✓

- 0369 Microtek 600Zs Color/Gray 1398 ✓

Thunderware

- 2212 Lightning Scan 400 384 ✓

- 0520 Lightning Scan Pro Scanner 499 ✓

Wacom

- 3803 SD-311E 12x18 ElectStatic Sur1325 ✓

- 3802 SC-100 4 Button Cursor 120 ✓

- 3801 SD-422L 12x12 Tablet 875 ✓

- 3496 SD-510C 6X9 Tablet 560 ✓

- 0087 12x12 Static Surface 421 E 935 ✓



MiniCAD+ 3.1
\$594



MiniCad+ is the original award-winning 2D/3D professional CAD package. You cannot find a more fully featured 2D/3D CAD program at this price. The program includes an integrated worksheet, spreadsheet and database—all linked to your drawings. Graphsoft #3540 ✓

DESIGN YOUR OWN HOME
Architecture



DESIGN YOUR OWN HOME
Interiors



DESIGN YOUR OWN HOME
Landscape



Design Your Own Home:

\$64 each

Architecture #3609
Interiors #3611
Landscape #3610

Whether you are a professional or a do-it-yourselfer, Design Your Own Home can make your planning time more productive. Each program includes sample plans and a try-out section to get you started, plus command cards to keep by your side as you work. There are 3 programs: Architecture (floor plans to structural details), Interiors (furnishings to color schemes), and Landscapes (trees to fences). Includes dozens of sample plans. Abracadabra ✓

Guaranteed Product Availability Call Now—Place Your Order Toll Free

**The Mac
Zone**
Established 1986

GRAPHICS

☉ = System 7 Compatible ✓ = Money Back Guarantee

Adobe Systems

3092 Adobe Type Align	61	☉ ✓
4042 PhotoShop 2.0	548	☉ ✓
4983 Adobe Illustrator 3.2 with ATM	368	☉ ✓
3971 Streamline 2.0	121	☉ ✓
2870 Adobe Plus Pack for Type Mgr.	108	☉ ✓
3280 Adobe Type Reunion	40	☉ ✓
3497 Adobe Type Manager 2.0	58	☉ ✓

Aldus Corp.

4121 Aldus Gallery Effects	128	☉ ✓
3947 Aldus Freehand 3.0	394	☉ ✓
4573 PageMaker 4.2	494	☉ ✓
4190 Aldus Superpaint 3.0	132	☉ ✓
1379 Super 3D 2.5 (Color)	328	☉ ✓

Broderbund

4347 Typestyler 2.0 With ATM	127	☉ ✓
3970 Banner Mania-Mac	34	☉ ✓

Claris

2201 MacPaint	87	☉ ✓
4073 MacDraw Pro	284	☉ ✓

Delta Tao Software

4082 Monet	249	☉ ✓
4070 Color Mac Cheese	64	☉ ✓

Deneba

0803 Canvas 3.0	248	☉ ✓
-----------------------	-----	-----

DiVA

0602 DiVA VideoShop	398	☉ ✓
---------------------------	-----	-----

Electronic Arts

3594 Studio 32	448	☉ ✓
3827 Studio 8 2.0	188	☉ ✓

Fractal Design

0665 Fractal Design Painter	249	☉ ✓
3216 ColorStudio	598	☉ ✓

Microspot

4326 Macpalette II (Apple Talk Vers.) .	162	☉ ✓
0818 Macpalette II	54	☉ ✓

Multi-Ad Services, Inc.

0054 Multi-Ad Search	115	☉ ✓
4774 Multi-Ad Creator	499	☉ ✓

Pantone Matching Grid

4056 Pantone Color System Guide	54	
3435 Pantone Color Imaging Guide	54	

Paracomp/MacroMind

4808 Swivelman 3D Pro 2.0	529	☉ ✓
3619 Swivel 3D Professional	434	☉ ✓
0839 MacroMind 3-D	1028	☉ ✓
0838 MacroMind Director 3.0	688	☉ ✓
3852 Swivel Art 3D	81	☉ ✓

Postcraft International

4049 Effects Specialist	94	☉ ✓
Layouts -Stationary Pack A or B	34	✓

Raydream

4801 Raydream Designer 1.1	589	☉ ✓
----------------------------------	-----	-----

Supermac Technology

1576 Pixelpaint 2.1	148	☉ ✓
2665 Pixelpaint Pro 2.0	489	☉ ✓

Zedcor, Inc.

3454 Desktop/Deskdraw 3.0.3	112	☉ ✓
-----------------------------------	-----	-----



**Fractal Design
Painter
V.1.2** **\$249**

Fractal Design Painter™ lets your Macintosh create original art or embellish scanned images with realistic natural media effects by duplicating traditional tools and textures in 24-bit color. Fractal Design #0665 ☉ ✓

MacPalette II **\$54**

What if you could turn your ImageWriter II into a full-color printer—producing over 250,000 colors from a four-color ribbon? You can with MacPalette II. It's compatible with any of the Macintosh II series, the Mac LC, the SE/30 with color capability and most Macintosh software. Microspot #0818 ☉

Appletalk Version #4326 ☉ \$162



\$38

Betterwriters

BetterWriters gives your dot matrix or inkjet printer LaserWriter-like features and more flexibility for graphics, speed, label-forms printing, user interface and communications options. GDT Softworks, Inc. #0901 ☉ ✓

Print Central
Print Server Software



The most advanced, convenient print sharing system ever developed for the Macintosh.
Computation Inc.

Print Central
\$468

With Print Central never wait for a printer, make the most use of your printer. Print Central publishes itself as one or several Chooser-level printer(s) over your AppleTalk network. It quickly receives documents from any application (including PageMaker) and spools them to one or several PostScript printers. Computation #00621 ☉ ✓

**OPEN 24 HOURS
EVERY DAY**

OVERNIGHT DELIVERY \$3 • 1-800-248-0800 • BY AIRBORNE EXPRESS

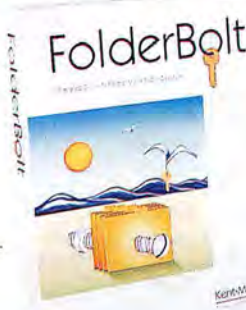


Call Now for your FREE Spring Catalog Over 2400 Products at Super Low Prices

FolderBolt

With a simple shift-click of the close box you can create completely locked folders, read-only folders or drop folders. Once a FolderBolt file is locked it can't be opened, duplicated, deleted or moved without the password. Kent Marsh #0258 ✓✓

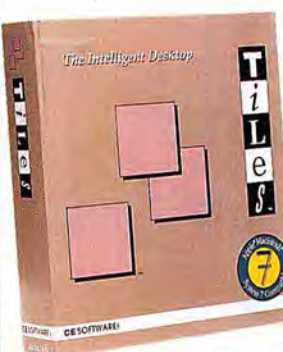
\$73



FileGuard

\$138

With FileGuard you can stop worrying about the security of your sensitive data. FileGuard controls access to your Mac's hard disk, partitions, folders, files, applications and desktop. Keeps a log of all access and operations. ASD Software #3286 ✓✓



Tiles
\$63

"What happened? Where did it go? I have work to do!" Sound familiar? You

need Tiles. Tiles keeps all related documents together—no matter what application they were created in. Saves hours of desktop clean up and documentation. CE Software #4802 ✓✓



OnCue II

Increase your productivity by organizing your files and applications with OnCue II. It eliminates time-consuming steps in both System 6 and System 7. OnCue II instantly launches individual applications and files, or groups of applications and files with a single click or keystroke. ICOM Simulations #4542 ✓✓

\$56



After Dark V2.0u

\$28

This high-quality screen saver has over 30 different displays **and sound**—now you can hear those whooshing meteors, and screen-munching worms. Exciting new displays feature Flying Toasters, Down the Drain, and the Bogus Software classic, Fish! Berkeley Systems #2785 ✓✓

Wallpaper

\$36

Are you tired of staring day after day at the same old desktop? Redecorate with Wallpaper, the software that allows you to display, create, edit and save any number of large desktop patterns using artwork made in Wallpaper or artwork imported from your favorite paint or draw program. Thought I Could, Inc. #4762 ✓



SECURITY UTILITIES

ASD Software Inc.	
0412 Maccess & Fileguard Bundle	395 ✓✓
3323 Fileguard Office Pack 10"	798 ✓✓
3286 Fileguard	138 ✓✓
3322 Fileguard Office Pack 5"	488 ✓✓
Casady & Greene, Inc.	
4761 Crash Barrier	45 ✓✓
Fifth Generation	
4413 Disklock 2.1	117 ✓✓
Handoff Corporation	
0855 Trashmaster 1.0	39 ✓✓
Kent Marsh	
0258 Folderbolt 1.0	73 ✓✓
1817 Night Watch for Mac 1.03	83 ✓✓
Magna	
4811 Empower II V4.07	148 ✓✓

HARD DRIVE UTILITIES

Aladdin Systems, Inc.	
3458 Stuffit Deluxe	61 ✓✓
Alsoft	
2853 Diskexpress II 2.0	49 ✓✓
0512 Super Disk!	54 ✓✓
Casa Blanca Works, Inc.	
4962 Drive Share	89 ✓✓
0858 Drive 7 Universal Formatter 2.0	49 ✓✓
Dantz	
4722 Disk Fit Pro	69 ✓✓
4194 Retrospect Rem. 1.3 with 10 Pak	263 ✓✓
2586 Retrospect 1.3	146 ✓✓
Fifth Generation	
4413 Disklock 2.1	117 ✓✓
FWB, Inc.	
0555 Hard Disk Toolkit	139 ✓✓
Golden Triangle	
4724 Disktwin 2.0	699 ✓✓
0861 TwinIt	169 ✓✓
Handoff Corporation	
0855 Trashmaster 1.0	39 ✓✓
Microcom	
2077 Virex 3.1 For Mac	56 ✓✓
Salient	
4955 Auto Doubler	48 ✓✓
3515 Disk Doubler 3.7	46 ✓✓
3516 Partner 1.01	55 ✓✓
Symantec	
4341 Sam 3.0 - Norton Bundle	119 ✓✓
4890 Norton Utilities 1.1.2	83 ✓✓
0116 Sam 3.0	65 ✓✓
4463 S.U.M. 2.1	95 ✓✓
Terranetics	
0863 Autoback	94 ✓✓

SCREEN UTILITIES

Baseline Publishing	
3762 Talking Moose	23 ✓✓
Berkeley Systems Design	
4046 More After Dark Bundle V.2	41 ✓✓
4053 More After Dark Vol. 1	24 ✓✓
2785 After Dark 2.0U	28 ✓✓
Bright Star	
At Your Service Characters	10 ✓✓
0415 At Your Service	30 ✓✓
Dubclick Software	
0908 Menufonts 4.0	44 ✓✓
3616 Clickchange 1.04	58 ✓✓
Fifth Generation	
4776 Suitcase II 2.0	49 ✓✓
2194 Pyro! 4.0 for Mac	24 ✓✓
Preferred Publishers	
3554 Screen Shot	30 ✓✓
Thought I Could	
4762 Wallpaper	36 ✓✓

Communicate More Effectively Faxes and Modems to Keep You Connected



PacerTerm
\$158

PacerTerm combines today's standards—Apple Comm Toolbox and HyperTalk scripting—with the best collection of file transfer (FTP, Kermit, XMODEM, ZMODEM) and connection protocols (TCP/IP, LAT, Modem and Serial). Pacer Software #4163 ✓



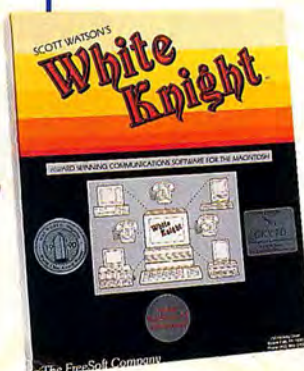
MicroPhone II
v4.0
\$209

MicroPhone II V.4.0 delivers communications without the hassle. Praised for ease of use and advanced scripting language, MicroPhone II 4.0 now contains faster script execution, screen speed, file transfers and new interface design tools. Software Ventures #4893 ✓

Hayes for the Mac

Hayes Ultra 96 Bundle \$724

The Hayes Ultra 96 is the modem for those who appreciate quality engineering and demand the best in data transfer hardware. This rock-solid, feature-filled modem comes bundled with widely celebrated Smartcom II software and a modem cable. Hayes #4796 ✓



White Knight 11
\$84

Written by programming prodigy Scott Watson, White Knight 11 gives you technical sophistication, flexibility and user-friendliness... at a great price. Its features include: a full-featured BBS package, a text log, security and access restriction and more. Freesoft #2881 ✓



MODEMS AND FAXES

✓ = System 7 Compatible ✓ = Money Back Guarantee

Abaton Technology Corp	
2987 Abaton 24/96 Faxmodem 110V	338 ✓ ✓
3186 Abaton 24/96 Faxmodem 220V	338 ✓ ✓
Applied Engineering	
4579 Datalink LC V.42 Fax/Modem	259 ✓ ✓
3669 Modem 2400 MNP 5 Send Fax Int.	269 ✓ ✓
Cypress Research	
4585 FaxPro with FaxPro Share V1.0	999 ✓ ✓
Dove Computer Corp	
3514 Dove Fax Plus	348 ✓ ✓
4756 Dove Fax Lan External	499 ✓ ✓
Global Village Communica	
3883 Teleport Adb 2400 MNP 5 Modem ..	128 ✓ ✓
0949 Teleport FullFax	218 ✓ ✓
0395 Teleport Fax 24/96 Send only Fax ...	184 ✓ ✓
Hayes	
0451 Personal Modem 2400+	148 ✓ ✓
4796 Ultra9600 with Smartcom IIMac	724 ✓ ✓
Logiccode Technology	
4644 Xeba 9600S/R Fax/V.42Bis Black	199 ✓ ✓
4674 Xeba 9600S/R Fax/V.42Bis Platin. ..	199 ✓ ✓
MacTurbo	
0977 MacTurbo 24/96 Fax Modem	189 ✓ ✓
0408 MacTurbo Plus Modem	89 ✓ ✓
Prometheus	
0331 PowerBook Home Office Int 24/96 ..	269 ✓ ✓
4596 Promodem 2496 S/R Mini Fax+	268 ✓ ✓
PSI Integration, Inc.	
4948 Powermodem 24/96SR Internal	215 ✓ ✓
Shiva	
1615 Netmodem V2400	338 ✓ ✓
3251 Netmodem V.32 9600	1149 ✓ ✓
Netmodem E (various ports)	1749 ✓ ✓

Solectek	
4753 Solectek Pocket Fax Modem	219 ✓ ✓
Supra	
0424 Fax Modem V.32 w/o SW/cable	259 ✓ ✓
3368 Supra Modem 2400 Macpac	138 ✓ ✓
4351 Supra Fax Modem Plus	199 ✓ ✓
Telebit	
2554 T-2500 V.42 Rel 6.01 19000 Bps	999 ✓ ✓
U.S. Robotics	
4611 World Port Modem 9600 V.32	549 ✓ ✓
1057 Courier HST Standard V.42	675 ✓ ✓
3665 Courier HST Dual Std. V.32 & V.42 ...	978 ✓ ✓
4626 World Port Fax Data Modem	369 ✓ ✓

Xeba 9600 V.42
S/R Fax
2400 Baud Modem
\$199

You will not find a better price for a 9600 send/receive Fax Modem. The V.42bis offers multiple positions and is available in black or gray. Includes Mac cable. Logiccode Technology, Inc. # 4644 Black #4674 Platinum ✓ ✓

Xeba 2400 External Modem #0852 \$99



FAX YOUR ORDER • 1-206-881-3421 • ANY TIME

The Mac Zone
Established 1986

Expand Your Storage Potential Quality Storage For Your Valuable Data



CDR M36 NEC's CDR-36M offers low cost entry to CD-ROM with the key benefit of fast, smooth data access. It's new features include: 450ms average access time, MPC compliance, user selectable SCSI ID extra buffering, 2-year manufacturers warranty. NEC #0573

\$429

CDR 73M #0574 ✓ ✓ **\$644**

HARD DRIVES

✓ = System 7 Compatible ✓ = Money Back Guarantee

DPI		
4881	DPI 105MB Q Ext. Quantum	499 ✓ ✓
4882	DPI 200MB Q Ext. Quantum	849 ✓ ✓
4884	DPI 415MB Q Ext. Quantum	1799 ✓ ✓
4451	DPI 45MB Removable Syquest ..	549 ✓ ✓
4880	DPI 52MB Q Ext. Quantum	359 ✓ ✓
4886	DPI 88 Removable Syquest	699 ✓ ✓
Everex Systems		
2161	Emac 150 Tape Backup Drive	715 ✓ ✓
FWB, Inc.		
0506	100 MB PocketHammer Drive	768 ✓ ✓
4891	200 MB PocketHammer Ext.	1198 ✓ ✓
4965	44 MB Hammerdisk Removable ..	729 ✓ ✓
0505	50 MB PocketHammer	568 ✓ ✓
4964	88 MB Hammerdisk Removable ..	999 ✓ ✓

Generation Systems, Inc.		
4589	45 MB Removable HD	549 ✓
4691	88 MB Removable HD	799 ✓
Iomega		
9728	Bernoulli Transp. 90Meg Drive ...	799 ✓
4052	Mac 1B Bernoulli Kit (req. for Mac) 38	✓

Mass Microsystems		
0899	Hitchhiker 40MB	599 ✓ ✓
4062	Datapak 88 Removable	839 ✓ ✓
0335	Diamond Drive 80P 2" Drive	499 ✓ ✓
0336	Diamond Drive 120P 2" Drive	639 ✓ ✓
0337	Diamond Drive 210P 2" Drive ..	1099 ✓ ✓
0338	Diamond Drive 320P 2" Drive ..	1749 ✓ ✓
0339	Diamond Drive 510P 2" Drive ..	2279 ✓ ✓
0175	DataPak 45 Removable	648 ✓ ✓

PLI		
4818	PLI 1.2 GB FH Ext	2899 ✓ ✓
4450	PLI 52MB External Hard Drive ...	475 ✓ ✓
3690	DAT Backup Sys. w/Retrospect ..	2299 ✓ ✓
2181	PLI Infinity 40 Turbo HD Rem ...	639 ✓ ✓
2182	PLI Infinity 40/40 Turbo HD	1199 ✓ ✓
0182	PLI Infinity 88 Turbo HD	799 ✓ ✓
4817	PLI Infinity Floptical 3.4 Ext	599 ✓ ✓
0446	PLI Q 200 MB Ext HD	849 ✓ ✓



Infinity Optical 128Mb 3.5" Optical Drive

\$1699 The next phase of optical technology has arrived. The PLI Infinity Optical read/write disk drive redefines high-capacity data storage. Backed by the manufacturer's 1-year warranty. PLI #4698 ✓ ✓

CD-ROM TITLES

Bureau of Electronics		
9948	Pioneer Bundle	229 ✓ ✓
4467	Monarch Notes	54 ✓ ✓
4469	Us History On CD ROM	219 ✓ ✓
4470	Countries Of The World	279 ✓ ✓

Quantum Leap Technologies		
0668	CD7 2 disc set	74 ✓
0666	Giga-ROM 2.0	98 ✓
0151	Macademic Vol 1	73 ✓

Sunshine		
4331	Visual Delights CD ROM	209 ✓

Tactic Software		
4219	Tactic Multimedia CD-ROM	149 ✓ ✓

Software Toolworks		
0515	1991 Groliers Electronic Ency	239 ✓
0516	Timetable Of History	54 ✓

Wayzata Technology Inc.		
0851	Front Page News 10/90-9/91	94 ✓
4565	GAIA Environmental Resources ..	149 ✓
4043	EPS Professional	189 ✓
0242	Korean War	79 ✓
0243	U.S. Presidents	25 ✓
0244	Down to Earth	155 ✓
3511	Vietnam Remembered CD ROM ...	78 ✓
0025	Middle East Diary	85 ✓



Sherlock Holmes

Consulting Detective
CD-ROM

\$38

ICOM's Sherlock Holmes, Consulting Detective CD-ROM game features over 90 minutes of full-motion color video. Live actors, original sets, and costumes provide an interactive-movie gaming experience. ICOM Simulations #1034 ✓ ✓



- All major credit cards accepted. No surcharge.
- Credit card is not charged until your order is shipped. If we must ship a partial order, freight is not charged on back order (USA only).
- Most personal and company checks received by mail will clear immediately. In order to be processed all checks or purchase orders must have a phone number and contact person listed.
- C.O.D. orders are accepted: Limit \$1,000 per order. Cashier's check or money order only. Add \$5.00 per C.O.D. order.
- Educational, government and corporate purchase orders are accepted.
- All U.S. shipments insured at no extra charge.
- No sales tax, except for Washington State residents (add 8.2%).
- Prices and product availability subject to change without notice. All specials and promotions are limited to available stock. Please call for current prices.
- All products covered by 120 day limited warranty.
- Shipping is \$3 per order for delivery in the USA. We ship via Airborne Express Overnight service. (Some rural areas require an extra day for delivery).
- Monitors are assessed an additional shipping charge. \$25.00 for full page, \$50.00 for two-page. UPS Rates are also available upon request.
- Orders placed 9pm to 7am ET are shipped free in USA via Airborne Express, except monitors.
- Orders placed by 9pm ET (6pm PT) weekdays for "in stock" items will ship that day for overnight delivery (barring system failure, etc.).
- APO/FPO box orders are shipped first class U.S. Mail. Shipments to P.O. Boxes are via UPS.
- We will not be held responsible for typographical errors.
- Defective software will be replaced immediately. Hardware will be repaired or replaced at our discretion.
- A Return Authorization Number must be obtained prior to returning any item. Please call Customer Service Hotline, 1-800-248-9948, weekdays from 6am to 6pm PT, 9am to 9pm ET.

Mac Zone 18005 NE 68th St, Suite A110 •
Redmond, WA 98052-9904

International: 206-883-3088 • FAX: 206-881-3421

Get Connected!

Keep In Touch With Quality Network Tools



NETWORKING

Asante		
0407	Asante Person to Person 2 Pack ..	70 ✓
0404	Asante 10T Hub/8 ..	264 ✓
0402	Asante Person to Person Zonepk	490 ✓
0348	Asante 10 T Hub/12 ..	560 ✓
0347	Asante Person to Person 10pk ..	279 ✓
4933	Asante Maccon 3 Ilsi ..	249 ✓
0510	Asante Maccon 3 SE ..	249 ✓
0894	Asante Hub 8 ..	264 ✓
0511	Asante Maccon 3 Nubus 64K ..	249 ✓
4334	Asante Maccon+ 30 I ET MC ..	299 ✓
0327	Asante EN/SC SCSI Ethernet ..	339 ✓
4184	Asante Maccon+ 30 I ET MC64 ..	249 ✓
3646	Asante Maccon+ 30 I ET ..	199 ✓
0221	Asante Maccon+Ile with 64K Ram	259 ✓
0029	Asante Maccon+ LC/EN 10 Base	T249 ✓
0820	Asante Maccon+ 30 IE MC 64 ..	359 ✓
3885	Asante 10 Base T Hub ..	659 ✓
3647	Asante Maccon+30Ie 64 ..	269 ✓
0228	Asante Maccon+ 30 IET 64 ..	259 ✓
0020	Asante Maccon+ 30 IE ..	200 ✓
3641	Asante Maccon+ II E EN ..	199 ✓
3642	Asante Maccon+ II ET 64K Ram	254 ✓
3945	Asante 10T MAU ..	99 ✓

Cayman Systems		
0181	Gator Box CS ..	1899 ✓
3117	Gator Card E/II (II Series) En ..	328 ✓
1026	Gator Print GX ..	408 ✓
1027	Gator Share GX ..	1398 ✓
1028	Cayman Gatorstar GX BNC ..	2994 ✓
1029	Cayman Gatorstar GX ..	2920 ✓
1030	Cayman Gatorstar GX 10Base T	1030 ✓

Dayna Communications Inc		
0487	DaynaPort SCSI Link-T ..	279 ✓
0488	DaynaPort SCSI Link-3 ..	299 ✓
0485	DaynaPort SCSI Link/Thin ..	279 ✓
4911	DaynaStar Minihub ..	308 ✓
0806	DaynaPort E/LC ..	197 ✓
4297	Dayna DI2000 Single User ..	215 ✓
4595	DaynaPort E/II-T ..	179 ✓
4717	Daynaport E/30 ..	179 ✓
4718	DaynaPort E/II ..	179 ✓
4139	DaynaPort E/Z T ..	264 ✓
0805	DaynaPort E/Sl ..	179 ✓
0804	DaynaPort E/Z ..	264 ✓
0321	EtherPrint Plus 4 Devices ..	599 ✓
0322	EtherPrint-T Plus 4 Devices ..	619 ✓
3546	Dayna Etherport/Local Talk ..	348 ✓
0003	Dayna Etherprint 10BaseT ..	348 ✓

Farallon		
0139	EN SI/SE30 Card PN585 ..	179 ✓
0137	EN SI/SE30 10Pk PN587 ..	1759 ✓
4885	Timbuktu Power Pack ..	199 ✓
4307	Phone Net Star Connec.PN502 ..	104 ✓
4738	12 Port StarController ..	1024 ✓
4739	24 Port StarController ..	1349 ✓
0352	Phonenet Talk Appleshare ..	124 ✓
0353	Phonenet Cd PC Localtlk PN380	208 ✓
0829	StarController 300 Ser. PN307 ..	886 ✓
3333	StarController En PN 507 ..	1358 ✓
3475	StarConnector En PN 501 ..	102 ✓

Nuvotech		
2184	Turbo Bridge ..	318 ✓
4067	Nuvolink II-T En 10 Base T ..	189 ✓
3119	Nuvolink II ..	189 ✓
284	Nuvolink SC-T ..	358 ✓
3115	Nuvolink SC ..	388 ✓
3121	Turbo Star (Nuvotech) ..	815 ✓

Shiva		
4038	Shiva Fast Path V Thick/Thin ..	1899 ✓
2700	Etherport II ..	188 ✓
2542	Shiva Telebridge ..	408 ✓
1406	Shiva Netserial ..	274 ✓
1405	Shiva Netbridge ..	408 ✓
2985	Ethergate ..	1295 ✓

Tops		
4715	Tops Repeater 2.0 ..	118 ✓
1677	Tops Flashcard (DOS) ..	149 ✓



10T Hub/8

\$264

With the Asante 10T Hub 8, network managers can connect local area networks with inexpensive twisted-pair telephone wire instead of expensive coaxial cable. Supports the IEEE specifications for 10Base-T Ethernet. Asante #0404 ✓

NEW EtherNET Cards from Farallon



Mac II Ethernet Card

\$179

The 10BASE-T-compliant PhoneNET Card allows owners of Mac SE/30 through Mac II machines to use the increased speed and bandwidth of Ethernet running over ordinary telephone wire. No external connector or transceiver is needed. Farallon #4894 ✓

Mac IIsi Ethernet Card #0139 ✓ \$179

NetModem/E

\$1749



NetModem/E is a stand-alone EtherNET communications device designed to meet three LAN communication needs: 1) it allows remote workstations to dial in and have full access to network services; 2) it lets LAN workstations call out to remote information services or hosts; 3) it joins geographically separated networks via a routing connection over ordinary phone lines. Shiva #4129 ✓



Call Me!

\$32

Call Me!, the network intercom, lets you talk, record, play and forward messages. The program requires System 7, AppleTalk and Microphone. Compatible with MacMike, MacRecorder and EtherTalk. PeCox #1036 ✓



CALL NOW • 1-800-248-0800

FREE SHIPPING ON ORDERS
PLACED 9PM TO 7AM E.T.

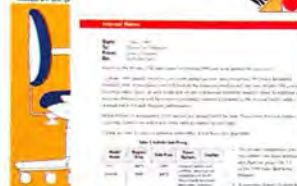
► FrameMaker.



The most comfortable seat in document publishing.

ModuLINE CEO Low Back Executive Seat

► Creating reports, tables, charts and graphs is easier than ever. The ModuLINE CEO is designed to provide the most comfortable seating for the Macintosh user. The ModuLINE CEO is designed to provide the most comfortable seating for the Macintosh user. The ModuLINE CEO is designed to provide the most comfortable seating for the Macintosh user.



FrameMaker's table editor lets you create detailed tables with straddled cells, graphics, unlimited paragraphs, and rotated text.



Executive Seating The Ergonomics Of Business

► The ModuLINE CEO is designed to provide the most comfortable seating for the Macintosh user. The ModuLINE CEO is designed to provide the most comfortable seating for the Macintosh user. The ModuLINE CEO is designed to provide the most comfortable seating for the Macintosh user.



FrameMaker automatically reformats multicolumn documents, updating page and paragraph numbers as well as cross-references.

To experience a whole new comfort level in document publishing, have a seat in front of a Macintosh® running FrameMaker®.

► FrameMaker integrates the entire publishing process into one easy-to-use application: Authoring, editing, graphics, page layout, production, even hypertext. Whether you create short, simple documents or long, structured documentation, you'll feel right at home with FrameMaker.

► You'll find our new version, FrameMaker 3.0, even more inviting. You can create your own intricate, multipage tables with its sophisticated table editor. And generate and maintain multiple versions of a single document with its conditional text capabilities. You can even import full-color images and produce four-color output of DCS images.

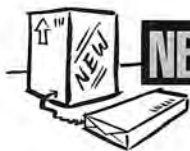
► That's the kind of innovation that earned FrameMaker an Editor's Choice award from MacWEEK and accolades from MacUser.

► And of course, it's compatible with System 7.0.

► So call 1-800-U4-FRAME ext. 857 for more information on FrameMaker 3.0 and the name of your nearest reseller. And feel how comfortable a position in publishing can be.

 **Frame**™

CIRCLE 126 ON READER SERVICE CARD.



NEW ON THE MENU

Marketing, marketing . . . Nest ([800] 524-3315 or [408] 441-1944) may have devised the ultimate gimmick. Through May, users who buy Nest's MacQuill (\$149), a combination word-processing/page-layout program, will receive a certificate for four days' free accommodations at a first-class hotel in Palm Springs, Las Vegas, Fort Lauderdale, Orlando, or Hilton Head Island. In exchange, users need only send Nest a returned MacQuill reg card and a floppy disk with a file created in MacQuill.

By Russell Ito

A few words less: Not so long ago, RAM was expensive and word processors were small. Then, RAM got cheap and word processors got big. Now, RAM is still cheap (OK, depending on the type) and word processors are . . . getting small — again? Seems so. Last month, we told you about Paragon Concepts' Nisus Compact, and now there are two more entrants in the arena. ➡ The people at T/Maker ([415] 962-0195) didn't shrink **WriteNow 3.0** (\$249); instead, they bulked it up, but the package is still tiny (only 275K) compared with behemoths such as Word 5.0. The biggest change to WriteNow is the addition of style sheets — for both paragraphs and characters. WriteNow's style-sheet implementation may be the most comprehensible yet. For example, a style's definition is displayed in a scrollable list that clearly spells out each of the formatting options involved. The pop-up style list also displays the styles in a hierarchical order, so it's easy to trace which styles are based on which. The character styles are equally sophisticated. For example, character styles can be defined either to override or to combine with the paragraph's character styles. WriteNow 3.0 also includes a print-preview option and support for color text and graphics. However, it treats placed graphics as characters and it has no text



wraparound. ➡ **LetterPerfect** (\$199), from WordPerfect ([801] 225-5000), is a scaled-down version of WordPerfect 2.1 that produces fully compatible WordPerfect files. LetterPerfect includes most of its parent's features, including a spelling checker, thesaurus, full System 7 support, and text wrap around graphics, but it doesn't include user-definable styles, a drawing environment, macros, or QuickTime support. Designed to run even on a 2-megabyte System 7 machine, LetterPerfect may be the mobile word processor of choice for WordPerfect offices.

Up to Date . . .

Version 2.0 of the Microsoft Office bundle includes Word 5.0, Excel 3.0, PowerPoint 2.01, and a Mail 3.0 client license. (206) 882-8080. \$750. ➡ Version 3.0 of **Correct Grammar**, WordStar International's grammar checker, now includes user-customizable rules for both grammar and style. (415) 382-8000. \$99. ➡ Version 4.0 of Olduvai's OCR package, **Read-It! O.C.R. Pro**, adds a redesigned trainable mode, a word processor, and batch processing to the features of its predecessor. (305) 665-4665. \$595. 🐘

Excel 4.0 Blazes Ahead

Barely a year after the April 1991 release of Excel 3.0, Microsoft has announced the imminent release of Excel 4.0. The new version includes significant improvements in ease of use, formatting

and presentation capabilities, and data-analysis tools.

The most notable ease-of-use addition is AutoFill. With this feature, Excel uses intelligent guesswork to fill in a range of cells based on the contents of cells you've selected. For example, if you enter *January* and *February* in adjoining cells, Excel will fill the remaining cells with the names

of the subsequent months. Or if you select a series of numbers such as 5, 10, and 15, Excel will follow with 20, 25, 30, and so on.

Other ease-of-use improvements parallel the drag-and-drop capability and the increased tool-bar emphasis of Word 5.0. The Excel drag-and-drop feature lets you select and drag cells to move or copy them without cutting and pasting. In the tool-bar area, Excel 4.0 offers a redesign of the standard iconic tool bar, new tool bars for activities such as charting, and the ability to customize and float tool bars. A spelling checker is another Word-like addition.

Excel 4.0 also lets you bind several worksheets, charts, and documents into a Workbook, which you can open from one icon on the desktop. Workbooks provide a destination for Lotus 3-D spreadsheets (you can now import them). You can unbind Workbooks if you need to — to share one of the worksheets with someone else, for example.

In formatting and presentation, Excel 4.0 includes such improvements as automatic range formatting and text centering over columns and the ability to create on-screen slide-show presentations. A slide show can include Excel graphics, worksheets, and charts as well as graphics imported from other applications. Charts are now easier to create, because the new ChartWizard tool leads you through Excel's otherwise quirky and unpredictable process step by step.

For power users, Excel 4.0 includes several new analysis features. The Analysis ToolPak includes general-purpose statistical-analysis tools as well as tools for financial, engineering, and scientific applications. For what-if analyses, the Scenario Manager lets you vary input values and view the output changes in a table.



The closest thing yet to one-touch scanning: HP's ScanJet IIp can communicate with some graphics applications and all text-based applications (once you've installed Caere's OmniPage Direct). You can scan words and images directly into applications with just a few mouse clicks.

Easy Scanning from HP and Caere

The ideal scanning process, some might say, would be to click on a button in your application and instantly have the text or graphic show up in the application. With Hewlett-Packard's new ScanJet IIp scanner and Caere's OmniPage Direct OCR software, the process is almost that simple.

The ScanJet IIp, a 300-dpi, 8-bit (256 grays), monochrome flatbed scanner, is the first scanner to support the TWAIN imaging standard. If your scanner and application support TWAIN, you can select an option within your application such as Scan Text or Acquire Image, click on the Scan button, and sit back. Within moments your text or image appears at the cursor location in your document. So far, the only TWAIN-compatible graphics applications on the Mac are PageMaker, from Aldus; DeskPaint, from Zedcor; and PhotoFinish, from ZSoft. All your text-based applications become TWAIN-compatible when you install OmniPage Direct, though.

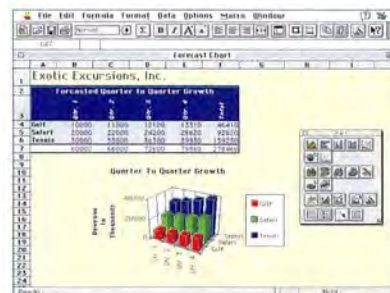
DeskScan IIp software, which comes with the scanner, is designed to

make scanning as automatic as possible, although it also includes manual options. It can automatically find the image to be scanned, set the exposure for optimized brightness and contrast, and discern whether an image is gray scale or line art. When you're scanning in text, OmniPage Direct uses HP AccuPage technology to set the optimal brightness level for OCR on every region of a page, so it can read text against tinted background areas. OmniPage Direct also automatically interprets the document orientation and character type, and it recognizes nearly all nonstylized fonts, from 6 to 72 points, at speeds of up to 2,000 words per minute.

The low price of the ScanJet IIp and OmniPage Direct — and the option of a 20-page automatic document feeder (ADF) for the IIp — make this combination well suited for small businesses and offices new to scanning. OmniPage Direct for the Mac should ship in the second quarter of 1992.

Hewlett-Packard Co., 19310 Pruneridge Avenue, Cupertino, CA 95014; (800) 752-0900. ScanJet IIp, \$1,095; ADF, \$395.

Caere Corp., 100 Cooper Court, Los Gatos, CA 95030; (408) 395-7000. OmniPage Direct, \$595 (\$300 with the ScanJet IIp).



Excel 4.0 is packed with new features, including a chart tool bar that attempts to take the mystery out of creating predictable charts.

NewsLine

Reports and Analysis

Apple Slashes Prices

CUPERTINO, CA — Continuing its aggressive pursuit of market share, Apple has announced major U.S. price cuts on most Macintosh models and has added two new PowerBook 100 models with twice the RAM and disk space. Reductions in suggested retail price for Macs range as follows: \$150 to \$550 (9 to 27 percent) for Classic models, \$950 (32 to 36 percent) for LCs, \$1,270 to \$1,570 (34 percent) for IIs, \$1,970 (30 to 37 percent) for IIs, \$2,270 (26 to 31 percent) for IIfx's, and \$300 (12 to 13 percent) for old PowerBook 100 models.

Messaging Standard Agreed On

REDWOOD CITY, CA — Apple, Borland, Lotus, and Novell have signed an agreement to jointly develop and support the VIM (vendor-independent messaging) interface specification in products such as Lotus' cc:Mail and Notes, Novell's NetWare message-handling-service products, and Apple's OCE (Open Collaboration Environment). The VIM specification provides a nonproprietary programming interface to help developers write messaging- and mail-enabled applications.

Radius Licenses System 7 Subset

SAN JOSE, CA — In another open-collaboration move, Apple has allowed Radius to license part of its System 7 software for incorporation into Radius Rocket accelerators and RocketShare cooperative-multiprocessing software (see story at left). With access to System 7's IAC (interapplication communication) capabilities, Radius can shorten its product-development cycles and keep RocketShare compatible with future Mac II and Quadra computers.

Sony Licenses AppleTalk

CUPERTINO, CA — Yes, still more *perestroika*: Sony has licensed Apple's AppleTalk network software. Soon, Sony's RISC- and UNIX-based NEWS workstations will be able to provide AppleTalk network services such as file service and print service and easily connect with Macs in networks.

Apple/Microsoft Suit Escalates

REDMOND, WA — OK, enough openness. Microsoft has been notified that Apple intends to seek \$4.36 billion in damages in its copyright-infringement suit over Windows' similarity to the Mac interface.

LaserJet Language Leap

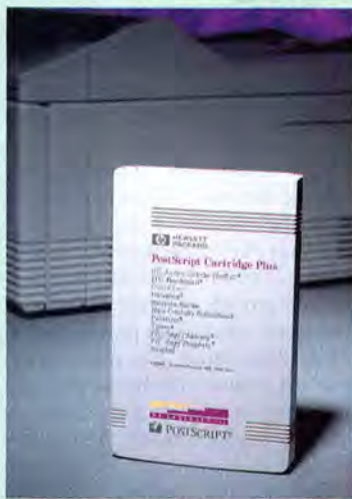
Cartridge wars have long been a drawback in sharing HP LaserJet printers over a mixed network — those PC users keep removing the PostScript cartridge so they can use the printer-resident HP PCL 5 language. However, help is at hand. The new HP LaserJet PostScript Cartridge Plus for the LaserJet III, IIID, and IIIP printers lets the PC users switch between PostScript and HP PCL 5 from their computers without holding you up. It also gives you a way to access the speed and power of PostScript Level 2 printing — once the driver for Level 2 becomes available.

The price for all this power? You'll need to add at least 1 megabyte of printer memory (the board costs about \$230 from HP), for a total of 2 megabytes. If you want the duplexing capability the new cartridge supports for your IIID, you'll need an additional 2 megabytes (\$390), for a 4-megabyte total.

As we mentioned, you'll also need a PostScript Level 2 driver (from Adobe) to access the Level 2 features. HP plans to include that driver with the cartridge, but Adobe may not have it ready

by the time you read this.

Hewlett-Packard Co., 19310 Pruneridge Avenue, Cupertino, CA 95014; (800) 752-0900. \$695; upgrade, \$195 (call [503] 750-5856 before May 31).



The HP LaserJet PostScript Cartridge Plus upgrades your LaserJet III, IIID, or IIIP printer to PostScript Level 2 (once the driver is available) and makes language switching easier for the PC users on your network.

You can also create cross tabs from a database, using the new Crosstab ReportWizard.

Pretty impressive set of features for a one-year turnaround.

Microsoft, One Microsoft Way, Redmond, WA 98052; (800) 926-9400 or (206) 882-8080. \$495.

Virtual Networks from Radius

Now that distributed processing over networked Macs is becoming a reality, many of us dream of having a network of 68040 processors at our disposal. While we've been dreaming, Radius has been working on RocketShare, an innovative software extension to System 7. Together with one or more Radius Rocket 68040 accelerators, RocketShare provides a true multiprocessing environment for the Macintosh. And with Apple licensing part of its operating system to Radius (see the "NewsLine" sidebar), future System 7

compatibility for RocketShare is assured.

RocketShare makes each Rocket installed in your Mac II or Quadra operate as if it were another Mac connected to your host Mac by a network. You can open a desktop window for each Rocket and access the host Mac's disk drives in that window as AppleShare volumes. When you run processor-intensive functions on a Rocket, your host Mac's CPU remains free for other tasks. Distributed processing among the Rockets and your Mac works essentially as it would among networked Macs, only faster, because the CPUs communicate over NuBus. And other Macs connected to yours on a network can also access your Rockets as though they were networked Macs.

Of course, with each Rocket being a separate Mac with its own System Folder, we have to wonder: Do you need a site license for any application you want to put onto your new "network"?

Radius, Inc., 1710 Fortune Drive, San Jose, CA 95131; (408) 434-1010. Price not set at press time. ☐

MAPPING

Atlas Pro

Atlas Pro links data files with geographical features to create a sophisticated mapping tool.

With its innovative feature set, System 7 support, and street-level-mapping capabilities, Atlas Pro takes the lead in the burgeoning desktop-mapping field. Combining the power of database and spreadsheet programs with the graphic strengths of the Mac, Atlas Pro goes far beyond presenting eye-catching maps. By linking data with geographic features, it excels at analyzing as well as presenting geographical data.

Caught Mapping

Atlas Pro is a hybrid of basic data-manipulation tools and an extensive collection of cartographic files. Based on data you enter or import, Atlas Pro can create maps of two basic types — locational point maps and area maps that use color to indicate data values — to present that data geographically. Street-

level maps are also available, but they're optional and cost extra. By creating hot links between the data and the program's cartographic files, Atlas Pro can serve as a powerful analytical tool.

Using a spreadsheet format to enter and edit the data that's linked to Atlas Pro map files, users have a fine degree of control over the map-creation process. However, Atlas Pro's spreadsheet module doesn't provide the same abilities as a stand-alone spreadsheet program does. It's clear that, rather than reinvent the spreadsheet program, Strategic Mapping concentrated on what it knows best — mapping tools. As a result, Atlas Pro's spreadsheet tools are limited — you can enter data, add new columns and rows, and do basic sorts and searches, but that's it. This is not a major weakness, though.

Atlas Pro comes with an excellent

implementation of System 7's publish-and-subscribe, making it easy for you to do your number crunching in Microsoft Excel, for example, and subscribe to the results in Atlas Pro. Nonetheless, some enhancement of the program's native analytical capabilities would be a welcome addition in future versions.

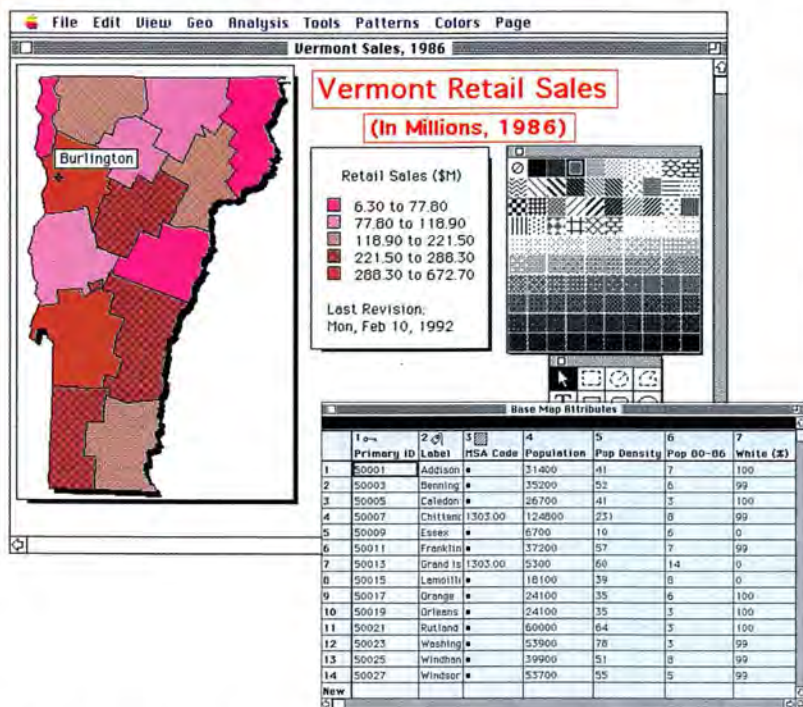
Atlas Pro's power stems from its ability to link two different file types — cartographic data and attribute data — for each map you create. Cartographic data, which consists of x,y-coordinate information as well as a Primary ID for each geographic feature, determines map geography, including points for cities, curves for highways, and polygons for geographic regions such as states. Attribute data, which can consist of information such as demographics or sales figures, determines how geographic regions are to be shaded or how points are to be distributed on a map.

Atlas Pro's cartographic-file collection comprises countries and their capital cities, state and provincial boundaries for the U.S. and Canada, U.S. counties, U.S. interstate highways, U.S. cities with a population of more than 25,000, and major Canadian cities. Also included is basic demographic data for each geographic entity, so users can create maps before they've even entered any data.

Attribute data is stored in spreadsheet format, and you can view and edit it separately from the maps. Column headings in the spreadsheet signify each attribute-data class (population, for example), and rows signify each geographic feature (counties or states, for example). Attributes are linked to map features in the associated cartographic file through the feature's Primary ID, which appears as a column in the spreadsheet.

If, for example, you want to create a county-level map of Vermont that's shaded by population, you can import Atlas Pro's file of Vermont-county geography and then bring up the attributes spreadsheet, which in this case consists of a two-column spreadsheet containing a Primary ID column and a population column with 14 rows, one for each county.

At this point, you can begin entering data and adding new columns manually. Atlas Pro also provides several options for bringing data into the spreadsheet from other programs. You can import data directly from text, FoxBASE+/Mac, or dBASE files. If you work with main-frame databases using Fairfield



Atlas Pro is a sophisticated mapping tool for analyzing and presenting geographic data. The program creates hot links between maps and their associated data, which you enter or import in spreadsheet format.

Software's ClearAccess and your Macintosh has a physical connection with the remote computers that store those databases, you can query them directly by executing a ClearAccess script from within Atlas Pro. You can also paste data from another application or bring it in by using System 7's publish-and-subscribe feature.

Once all your data is in the spreadsheet, you select the thematic data category (population by county, in this example) and opt for either a point map or an area map. Atlas Pro can create standard shaded thematic maps, dot-density maps (which do a better job of displaying broad distributions), graduated-symbol maps (which scale a symbol in proportion to a given data element for each point), locational point maps, and area cartograms (an infrequently used map type that scales an entire polygon to a data element). You can also generate summary data reports by selecting geographic areas.

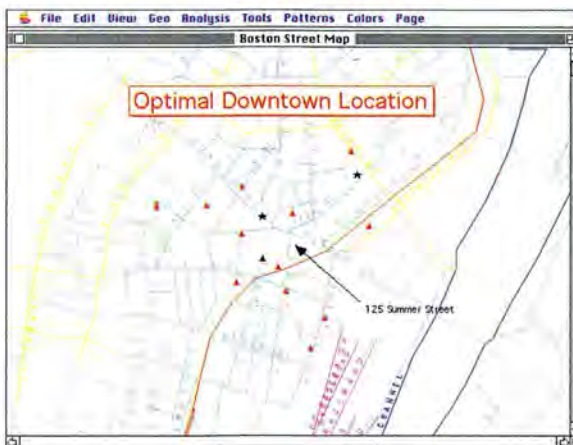
One of Atlas Pro's most innovative features is the ability to link PICT files to cells in spreadsheets. For example, a real-estate agent could create a street map of Boston with dots located at each listed property costing less than \$250,000 and within ten miles of a client's work address and then configure Atlas Pro to display floor plans of the houses when clients clicked on specific listings. You can take advantage of even-more-powerful capabilities by linking QuickTime movies to map features.

Atlas Pro's optional street files cost \$200 to \$500 per county (you can also purchase street maps of the entire U.S. on CD-ROM for \$25,000). This option is impressive, but Atlas Pro's street-level mapping can't compete with the speed and additional features (the ability to locate addresses on the right and left sides of the street, for example) of more costly, high-end packages such as Tactician, from Tactics International. In addition, Atlas Pro suffers from an annoying bug that prevents users from correctly labeling points on a street map by using spreadsheet-column names.

But compared with chief rival MapInfo, from MapInfo Corp., which sports a similar feature set and price tag, Atlas Pro is a better all-around mapping tool. Its map annotation is more sophisticated, it sports a cleaner and less cumbersome interface, it can plot maps in any of nine projections, and it provides remote-mainframe SQL querying. In addition to



Unique to Atlas Pro is the ability to integrate PICT files and QuickTime movies with map features. Here, clicking on a symbol in this real estate map of San Francisco activates the associated movie.



Atlas Pro's optional street-mapping files, priced at \$200 to \$500 per county, provide sophisticated site-analysis capabilities. For example, a hospital could plot patients' street locations to best determine where to build an outpatient clinic.

publish-and-subscribe, the System 7-savvy program supports Apple events, TrueType, and Balloon Help.

Atlas Pro runs on any Mac, from the Classic to the Quadras. Because of its data-intensive operations, however, we recommend a 68030-based machine for optimal performance. The documentation, which includes a user manual, a getting-started tutorial, and a section on improving mapmaking skills, is excellent. Strategic Mapping's technical-support department responded quickly and accurately to our phone calls.

The Bottom Line

With its ability to create hot links between data files and geographic features on a map, Atlas Pro is an excellent and affordable tool for performing geographic analysis. The program supplies an extensive collection of cartographic files, optionally with street-level files, making it ideal for presenting your results once you've completed your analysis.

Although Atlas Pro's built-in data-manipulation tools are limited, the program's support for publish-and-subscribe makes it easy to bring in data from stand-alone programs such as Microsoft Excel and ACIUS' 4th Dimension. For those looking for a way to do sales-territory analysis, demographic studies, or land-use planning, Atlas Pro is a powerful and accessible tool.

— Jeffrey A. Steinberg

Get Info

Atlas Pro

Published by: Strategic Mapping, Inc., 4030 Moorpark Avenue, Suite 250, San Jose, CA 95117; (408) 985-7400.

Version: 1.0.5.

List Price: \$795; optional street maps, \$200 to \$500 per county.

SPREADSHEETS & NUMERICAL ANALYSIS

DataPivot

Brio's Eddy Award-winning click-and-drag reporting tool simplifies data analysis.

If you've ever longed for a way to create a variety of cross-tabular reports from the same worksheet or data record — without the arduous task of writing complex spreadsheet formulas and macros — DataPivot is for you. A powerful and flexible reporting tool, it lets you create multiple views of a single data set by rearranging the data on the fly.

Pivoting Reports

Anyone who has ever struggled with Microsoft Excel's clumsy transposition procedure will take to DataPivot instantly. The program lets you pivot a report, interchanging columns and rows, simply by clicking and dragging row and column headings to a new location. It not only sees to it that all the interchanged data falls under the appropriate headings in the new format but it also recalculates new totals, subtotals, and cross tabulations.

By letting users view *n*-dimensional data in a variety of formats quickly and easily, DataPivot succeeds wonderfully as a data-analysis tool. But it has its limitations — it lacks charting tools and its report-formatting options are minimal for presentations. Moreover, you can't create ad hoc data entries directly within DataPivot. In its first iteration, the program is designed to collect tabular data from a spreadsheet or database, massage it, and send it to a charting application or presentation tool for refinement.

You work with DataPivot by using two main windows: the Source window, for accepting tabular data, and the Report window, for manipulating it. The Report window comprises a central data area and a horizontal bar (top labels) and a vertical bar (side labels) for labeling the data. In a report, top labels become column headings and side labels become row headings.

You have three options for bringing data into the Source window: subscribing through System 7, pasting data from the Clipboard, or importing data from a text file. Once DataPivot has the data, you build reports by clicking on columns of data in the Source window and assigning

them to areas in the Report window.

To begin, you must decide which data classes in the Source window are to become top labels and which will be side labels in the Report window. That done, when you first assign a column of data to either a top label or a side label, DataPivot reads the data class (Sales Regions, for example) of the source column and automatically creates a label. A floating icon bar makes this process a snap.

Once you've created labels, DataPivot is smart enough not only to organize selected columns of data under the appropriate labels (Sales Quarters across the top and Sales Regions down the side, for example) as you transfer them from the Source window to the Report window but also to calculate the data values.

When you have assigned all your data to labeled rows and columns in a report, DataPivot allows you to switch the row-and-column orientation by clicking and dragging the labels. You can, for example, switch your view from comparing yearly sales within each region to comparing regions within each year. As you pivot the report, DataPivot recalculates the values to reflect the new report structure.

Rows and columns are readily interchangeable, so from here on we'll refer to report rows and columns as vectors. The

only differences among vectors in a report, as far as DataPivot is concerned, are the underlying data values and whether the vectors have a horizontal or a vertical orientation.

A key DataPivot concept is that vectors and labels in a report are interconnected, so you never work with individual cells or even individual labels, as in a spreadsheet program; instead, you work with related groups of vectors and labels, some of which aren't always visible on-screen. As a result, a complex substructure of a particular selection may not always be readily apparent.

Gadgets

You can further refine DataPivot reports by applying the program's gadgets, or tools. One of the most powerful is the Limit gadget, which lets you specify a range of source values for a report as well as exclude specific values. This process requires just a few mouse clicks in DataPivot; accomplishing the same task in a spreadsheet program or a database program would require tedious and time-consuming manipulation.

The Formula gadget lets you define and modify vector formulas. We were confused by its Increase formula, which computes the difference between two adjacent vectors. Its usefulness seems limited, and you're probably better off performing such calculations in a spreadsheet program. Luckily, transferring a report to a spreadsheet program is a no-brainer. You can export reports in a variety of formats, including Excel's BIFF format.

DataPivot lets you create blank columns in the Source window and apply

Quarter	Division	Project	Name	Revenue
Qtr1	Corp Accounting	General Ledger	Sue Sawyer	\$3,600
Qtr1	Corp Accounting	General Ledger	Teri Taylor	\$42,000
Qtr1	Manufacturing	Inventory Control	Mary McIntire	\$6,600

DataPivot is a reporting tool that lets you create multiple views of the same data set by clicking and dragging columns and rows. Here, we've entered source data (bottom) into the main Report window, and we're about to pivot the report.

The screenshot shows the DataPivot application window titled '1992 Revenue Report'. It displays a multi-tabular report with columns for quarters (Qtr1, Qtr2, Qtr3, Qtr4) and rows for different departments (Corp Accounting, Manufacturing, Marketing) and their sub-totals. A 'Formula' menu is open, showing options like Sum, Average, Count, % of Column, % of Row, % of Grand, Increase, % Increase, and String. Below the report, a small table shows data for 'Quarter', 'Division', 'Project', and 'Item'.

		Qtr1	Qtr2	Qtr3	Qtr4
		Revenue	Revenue	Revenue	Revenue
Corp Accounting	General Ledger	\$45,600	\$45,600	\$42,000	\$42,000
	SUBTOTAL	\$45,600	\$45,600	\$42,000	\$42,000
Manufacturing	Inventory Control	\$22,200	\$22,200	\$20,000	\$22,200
	Production Planning	\$15,600	\$15,600	\$15,600	\$15,600
	SUBTOTAL	\$37,800	\$37,800	\$35,600	\$37,800
Marketing	Marketing Database	\$22,500	\$22,500	\$39,300	\$39,300
	SUBTOTAL	\$22,500	\$22,500	\$39,300	\$39,300
	TOTAL	\$105,900	\$105,900	\$116,900	\$119,100

Quarter	Division	Project	Item
Qtr1	Corp Accounting	General Ledger	Joe Sawyer
Qtr1	Corp Accounting	General Ledger	Tom Taylor
Qtr1	Manufacturing	Inventory Control	Harry McIntire

Here's the same data set after rearrangement of the columns and rows.

DataPivot has recalculated the totals according to the new arrangement. By default, the program sums the values, but the Formula gadget lets you opt for other formulas.

future enhancements to the program.

DataPivot is System 7-savvy and supports publish-and-subscribe as well as Apple events.

The Bottom Line

DataPivot is an extremely useful tool for creating sophisticated cross-tabular reports. Its simple click-and-drag interface lets you build a variety of numerical summaries with the same data set quickly and easily, thereby simplifying the process of data analysis. In this regard, it beats the time-consuming process of writing complex formulas in Excel, and it's far easier to use and understand than many of the statistical packages available for the Mac.

However, as is often the case with first versions of innovative programs, DataPivot is at times quirky and frustrating. Moreover, its documentation needs considerable work — it's obvious that Brio added and/or changed features after it made the documentation final. And although DataPivot's capabilities are impressive, the program has its limitations. It can't substitute for the specialized analytical tools of statistical packages, its formatting and printing options are adequate only for the most-basic report formats, and it lacks charting features altogether. For presentation-quality output, you have to export DataPivot reports to your favorite spreadsheet or page-layout application.

Overall, DataPivot's strength lies in condensing and organizing data in a uniquely fluid manner. With its data-import and -export abilities, and its support for publish-and-subscribe, DataPivot is best for use as an analytical "pre-digester." If it sorted out some confusing features and added tools for creating more-attractive report formats, Brio could make a valuable gem out of a diamond in the rough.

— Louis Benjamin, Jr.

formulas to them before they're assigned to a report. There's no way to delete a column in the Source window, however. We found that using the Clear command on the Edit menu triggered a progress indicator, but the empty column remained in the Source window. Fortunately, you don't have to use all the source columns as you build your report.

DataPivot's gadgets vary in their usefulness, but they all share one annoying characteristic — they close when you press the Return key. Also, the program lacks keyboard command equivalents for opening and selecting gadgets.

By far the most fascinating characteristic of DataPivot is that it lets you manipulate complex relationships within sets of data without requiring the cell-oriented formulas of an Excel worksheet or the more daunting and cumbersome data-series formulas of an Excel chart. You can change the elements of a DataPivot report and recalculate on the fly simply by clicking and dragging. If recalculation time becomes a burden, you can switch to Draft mode, in which DataPivot shows only the structure of the report you're defining without performing the calculations.

Label Clusters

In addition to automatically clustering source data according to the report labels you've created, DataPivot lets you cluster the labels themselves. But you must do so manually by clicking on the labels and then clicking on the Group icon. This feature allows you to collapse sets of vectors easily — for example, you might want to look at sales on a monthly basis, collapse them into a quarterly review,

and collapse them again to show sales on a semiannual or annual basis. Unfortunately, however, the program provides no tools for automating this process. The ability to create and save views within a DataPivot document would be extremely useful.

Depending on the cursor's position within a cell, the cursor points upward or sideways to indicate that a click will select data in either a column or a row orientation. However, DataPivot's super-sensitive cursor sometimes behaves erratically if you don't elect to display grid lines in the data area of the report while you're setting the report up.

You can adjust row height and column width by selecting parts of a data area, moving the cursor to the edge of a row or a column, and dragging when the cursor changes into a double-ended arrow. Several important options are missing, however: Among them are a menu item for adjusting column width and row height in a dialog box and an option for snapping vectors to appropriate heights or widths based on the data they contain.

DataPivot works entirely in RAM, so the more memory you have, the larger the data set you can manipulate. The program is most comfortable working with data sets consisting of 20 or so columns and about 2,000 rows; performance suffers with larger data sets. Other factors that affect performance are CPU horsepower and the number of gadgets and formulas you use.

If you're going to make the most of DataPivot, you'll likely spend a few dimes on phone support. Overall, we found the technical-support people knowledgeable and open to suggestions for

Get Info

DataPivot

||||

Published by: Brio Technology, Inc., 444 Castro Street, Suite 810, Mountain View, CA 94041; (415) 961-4110.

Version: 1.03.

List Price: \$299.

INPUT DEVICES

Six Trackballs

Fast and precise, trackballs put an ergonomic spin on pointing devices.

Trackballs offer several advantages over the common mouse. They take up less space; don't get tangled up in their own cords; and when used with a large monitor, can save users from making numerous swipes across a mouse pad to get from one corner of the screen to another — a simple roll does the trick. Moreover, many users claim that trackballs give them a finer degree of cursor control. For those of you who are tired of swiping and want to get on a roll, the six trackballs reviewed here offer attractive, ergonomically designed alternatives to the mouse.

MacTRAC

The MicroSpeed MacTRAC is a sturdy, unassuming trackball that comes with powerful software. Its base forms a comfortable curved surface on which you can easily rest your wrist. The accompanying software offers more options than any other trackball does for customizing the

buttons — in this case, the three that surround the billiard-ball-sized ball.

The preassigned buttons perform click, Shift-click, and click-lock operations, respectively. You can use the software to customize MacTRAC for either left- or right-handed use. The real power of the software, however, lies in Key Events.

Key Events allows you to set the device to perform a variety of functions — such as Save, Undo, and Delete — that use different click sequences. For example, while you hold down the MacTRAC's right button, one click on the left button can execute a Cut operation and two clicks can execute a Paste. What's more, you can set the third button (it's between the two side buttons, and you can reach it by extending your fingers over the ball) to execute as many as eight Command-key shortcuts or Fkey operations. In concert with a macro program such as QuickKeys or Tempo II, the number of combinations becomes

virtually endless. The only drawback to the MacTRAC is the middle button, which is awkward to reach.

MVP Mouse

Despite its confusing moniker, the Curtis MVP Mouse is a trackball, and it comes with a most unusual option, a foot switch. The switch serves as a fourth button you can use for clicking or as a key assignment. The three-button layout on the trackball itself will suit both left- and right-handed users.

In addition to letting you set the tracking speed, the MVP Mouse's software lets you assign a variety of operations to its buttons, including click, click-lock, Delete, Return, Undo, and Command plus any character. We found the bumpy surface of the base and the button action uncomfortable, but if you like the idea of a foot switch (organists and sewing-machine operators, perhaps?), then check out the MVP Mouse.

Silhouette

The EMAC Silhouette is a somewhat odd-looking, oblong trackball with the ball nestled at one end of the base. The primary button falls naturally where your thumb rests, but the second and third buttons are inconveniently placed — too far up for you to use your thumb and an



Clockwise from top left: the CoStar Stingray, Curtis MVP Mouse and foot switch, Microspeed MacTRAC, EMAC Silhouette, and Logitech TrackMan. In the center is the Appoint Thumbelina Mac. A trackball can make your cursor fly across the screen faster and can give you more pointing precision than any mouse can.

awkward reach for your index finger. The trackball is designed for right-handed users only.

You can choose one of four colored balls for use with the Silhouette, each of a different weight. When you take a ball out of the base, the circuit board inside is exposed. Because balls collect dirt easily, this absence of shielding between the ball and the circuit board can cut down on the life of the trackball.

The Silhouette's software offers standard controls for setting the device's tracking and double-click speed. You can also assign Command-key shortcuts to the Silhouette's third button.

Stingray

The CoStar Stingray is a trackball for the ham-fisted — the device's two buttons take up more than half the base (one on each side of the ball) and demand no dexterity whatsoever. The device features the lowest profile of any of the full-sized trackballs reviewed here, and it is shaped much like the marine creature whose name it bears.

The Stingray's symmetry makes it ideal for right- or left-handed users. A switch underneath the base lets you set the buttons for click and click-lock (you can also set both as a click). The accompanying software is basic — because the keys aren't meant to double as macros, you use the software only to set acceleration and double-click speed. To the Stingray's credit, you can customize both settings to an incredibly precise degree. The Stingray's cord is too short to connect the device to the ADB port on the back of your computer, so you have to use the keyboard port, which is not always the most convenient setup.

Thumbelina Mac

Whereas the Stingray is well suited to the ham-fisted, the Appoint Thumbelina Mac is best used by the nimble-fingered. It's one of the smallest trackballs made and requires a fair amount of dexterity and practice to be used effectively.

The ball is the size of a marble, and the base is small enough to fit in the palm of your hand. Three buttons dot the surface: One performs a click, another does a click-lock, and the third controls the tracking speed (no software is required).

The Thumbelina Mac has none of the usual scrolling advantages of a trackball. It takes several swipes of the tiny ball just to get the cursor across a 9-inch Classic

screen, for example. A hinged bracket lets you mount the device on the upper right corner of your keyboard, but the documentation does a poor job of explaining how to do so. However, unlike with stationary trackballs, you can hold the Thumbelina Mac in your hand and use it effectively while you're standing, making it an attractive option for presentations or other situations in which a stationary trackball is too limiting.

TrackMan

As you might expect of the 1991 Eddy Award Winner for Best Input Device, the Logitech TrackMan is a cut above the rest of the trackballs. The rectangular device sports three buttons in the upper right corner of the base and a golf-ball-sized ball in the lower left corner. Unlike with most trackballs, you operate the TrackMan with your thumb on the ball and your fingers on the buttons. It's an unusual design that may not suit everyone, but it worked well for us.

The TrackMan's MouseKey software is outstanding. It provides the standard settings for tracking and double-click speed, but it really shines when used with the device's programmable buttons. As with some other trackballs, each of the device's three buttons can be defined as a number of clicks (one, two, three), a click-lock, a Command-key shortcut, or an Fkey. But what really sets the TrackMan's software apart from that of all the other trackballs is its ability to let you assign buttons to execute commands specific to certain applications. As you switch applications, the settings change according to your assignments.

The Trackman is not only rich in features but also sturdy in construction, and its flexibility and ergonomic design let it outshine the competition.

The Bottom Line

Each of the devices reviewed here offers unique ergonomic and customizable features. The Trackman stands out from the pack with its excellent design and versatile software. Next in line in terms of excellence is the MacTRAC, a comfortable, well-built device that provides a host of options for customizing its buttons. The Silhouette gives you your choice of ball color and weight, and the Stingray is the most forgiving in terms of operator dexterity. If you require freedom of movement for presentations, the Thumbelina Mac may be what you need.

But ultimately, choosing your trackball is as personal as selecting your office chair. Comfort is the most important characteristic, followed by the flexibility to meet specific needs.

— Ben Templin

Get Info

MacTRAC

Manufactured by: MicroSpeed, Inc., 4400 Old Warm Springs Blvd., Fremont, CA 94538; (800) 232-7888 or (510) 490-1403.
List Price: \$119.

MVP Mouse

***½

Manufactured by: Curtis Manufacturing Co., Inc., 30 Fitzgerald Drive, Jaffrey, NH 03452; (800) 548-4900 or (603) 532-4123.
List Price: \$149.95; optional foot switch, \$29.95.

Silhouette

***½

Manufactured by: EMAC, 48431 Milmont Drive, Fremont, CA 94538; (800) 628-3837 or (510) 498-1111.
List Price: \$99.95.

Stingray

***½

Manufactured by: CoStar Corp., 22 Bridge Street, Greenwich, CT 06830; (800) 426-7827 or (203) 661-9700.
List Price: \$129.

Thumbelina Mac

Manufactured by: Appoint, 7026 Koll Center Parkway, Suite 230, Pleasanton, CA 94566; (510) 417-0611.
List Price: \$99.

TrackMan

***½

Manufactured by: Logitech, 6506 Kaiser Drive, Fremont, CA 94555; (510) 795-8500.
List Price: \$149.

SECURITY

ultraSECURE and Empower II

ultraSECURE provides more security options but less privacy than Empower II does.

For those whose security needs extend beyond simple volume and drive protection, two packages offer a variety of sophisticated access-control, data-encryption, and audit options. Both Empower II and ultraSECURE are easy to set up and use, although they differ in their security implementation as well as in the overall number of features they provide.

ultraSECURE

ultraSECURE offers more features than Empower II does, but its implementation is more structured and rigid. Most note-

worthy among the ultraSECURE features that Empower II lacks are virus protection and data-eradication tools.

To begin using ultraSECURE, you must first create an AutoInstall script with the Administrator program. The most crucial step involves creating a hierarchical user chart, which controls access privileges. You design the chart to reflect the security structure for your particular organization—at the top is the system administrator, followed by group supervisors, followed by users. Access privileges move from the top down: Users can access their own files as well

The 33MHz Performance/040™ accelerator from Impulse Technology provides your Macintosh with the number-crunching power you need for today's sophisticated applications.

For example, consider the number of hours it took to render this image:

Performance/040	18.5
Quadra 900	22.57
50MHz '030 accelerator	45.14
Mac IIcx w/32k cache	56.42
Mac IIci	62.16

Every Performance/040 comes with:



Animals™ automatic cache management software for compatibility with virtually all Mac software.



Performance/Disk™ RAM disk driver optimized for our closely-coupled 040 memory system.



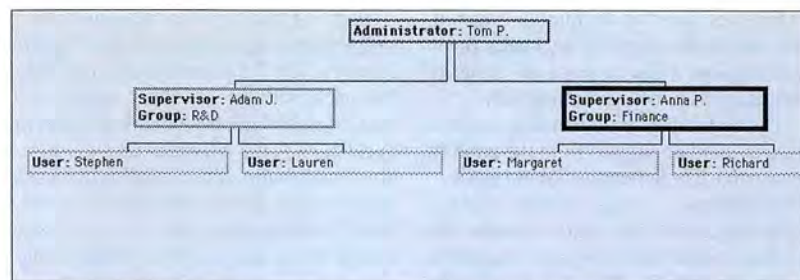
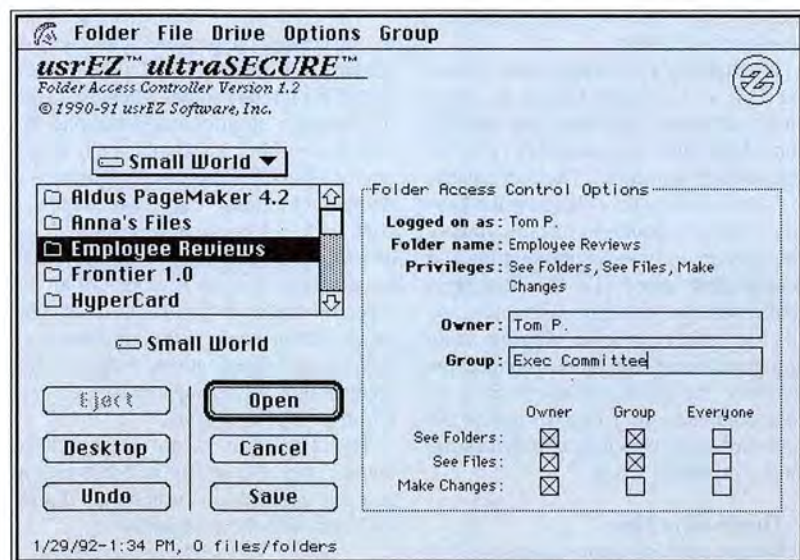
Expert technical support and a two year warranty insure trouble-free operation.

Available for Mac II, IIx, IIcx, IIci, IIfx, IIsi, Quadra 700 and Quadra 900.

IMPULSE
TECHNOLOGY
210 Dahlonega St., #205, Cumming, GA 30130
(404) 889-8294 • FAX (404) 781-8738

As always, trademarks are the property of their respective holders.

CIRCLE 129 ON READER SERVICE CARD.



ultraSECURE provides sophisticated access-control options (top) as well as virus protection and data eradication. The program takes a hierarchical approach to security with user charts that assign access privileges from the top down (bottom).

as those of all users who fall below them in the hierarchy.

The administrator can permit or restrict a variety of activities — including floppy-drive access, floppy initialization, SCSI initialization, file- and folder-related operations (creation, deletion, renaming), rearrangement of the Finder desktop, and use of the programmer's switch — for each level in the chart.

Next, the administrator assigns options for log-ons, log-on failures, passwords, audit trails, and DA access. The administrator can restrict access to DAs according to level in the hierarchy (administrator, supervisor, user).

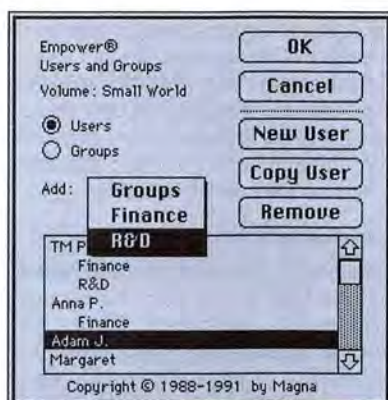
Once setup has been completed, administrators can install the finished AutoInstall script file on those machines they want to protect. If a single multiuser machine with more than one hard drive is involved, you can install a separate script for each hard drive. The ultraSECURE INIT is installed automatically, and you have the option of loading ultraSECURE's Access Controller and appSECURE DAs as well as the virus-protection INIT and a copy of the Administrator program. After installation is finished, the Macintosh automatically restarts and presents you with a dialog box for entering the user name and password.

You can also use the Administrator program to add or delete users and to completely erase disks according to National Security Administration standards.

The process of setting up folder protection is identical to using System 7's File Sharing or AppleShare. In fact, if you're using System 7 but haven't activated File Sharing, you can use System 7's Sharing item, on the File menu, to set up access privileges. If you've activated File Sharing, however, you must use ultraSECURE's Access Controller DA. You can set Owner, Group, and User access privileges to designate who can view and/or change files and folders.

When you use the Access Controller DA to restrict file access, you can also opt for one of three file-encryption methods: DES (the U.S. government data-encryption standard), Double DES, or ultraSECURE's own ultraCRYPT.

To create an audit trail of users' activities, ultraAUDIT compiles reports on unsuccessful log-on attempts; who has logged on and off a system and when; and what applications, documents, and DAs were used. You can export the reports as text files to your favorite word processor.



Empower II allows more setup flexibility and privacy than ultraSECURE does. Its control panel lets you assign a group to a user or a user to a group (top). It also lets you select the information you want to include in the activity log, which provides an audit trail of user activity (bottom).

The appSECURE DA lets you password- and/or copy-protect applications. The viruCIDE INIT provides a modicum of virus protection — it's able to detect, isolate, and remove WDEF and other viruses.

ultraSECURE also supports ultraKEY, which allows administrators to access a Mac by using a key disk they've created instead of using a password.

Unfortunately for its users, ultraSECURE's manual is only fair, so it's easy to get confused if you've never used security software before. Moreover, technical-support calls go through an answering service, which results in frustrating rounds of phone tag. ultraSECURE's maker assured us that this problem would be remedied with a direct toll-free number in the near future.

What bothers us most about ultra-

Have your Mac made just the way you want it! Choose a CPU then add your Mac Condiments!

BUILD IT YOUR WAY!

At MacFriends

Mac Menu Here's the beef!

Add your favorite "Macaccessories" to the bare CPU of your choice!

POWERBOOK 140 \$2488
Lease just \$99/mo.

QUADRA 700 \$4488
Lease just \$168/mo.

ci \$2588
Lease just \$105/mo.

si \$1888

QuickKor TS Laser Printer \$1888
or ask about our other printers!

13" Color Monitor \$448
We have all the best brands!

Xerox 730GS \$988
Includes Accutext!

800 331-1322
24 hour QUICKFAX (503) 286-8710
Local: (503) 286-9350

Mac Friends

Satisfy your Mac appetite. Call MacFriends today!!

AMERICA'S "MAC-ONLY" STORE

FEDERAL EXPRESS QuickKor Card

CIRCLE 95 ON READER SERVICE CARD.

After Dark

THE ULTIMATE SCREEN SAVER

32 incredible displays to prevent phosphor burn-in. Flying Toasters and fantastic Fish. Screen-locking password protection. Company logo and message display. SystemIQ activity monitor. \$49.95



More After Dark

An all-new collection of 26 add-on displays. Contest winners Mowin' Man, Tunnel and GraphStat. Virex@D virus scanning module from the makers of Virex. Boris the Cat. Lunatic Fringe space game from the creator of Solarian II. Beautiful new fish. \$39.95



BERKELEY
SYSTEMS



Available now through software resellers everywhere, including the Mac Zone. To order call

1-800-248-0800

\$3 overnight shipping available.

NEW ON THE MENU

REVIEWS

SECURE, however, is its inflexible implementation. The software doesn't allow individual users to protect their personal files. Once the hierarchy has been set up, administrators and supervisors can access everything on a user's machine if the user is beneath them in the hierarchy.

Empower II

Empower II's features can't match ultraSECURE's long list: The package can't protect applications, prevent the deleting and renaming of accessible files and folders, or provide automatic shutdown and data eradication. But it does offer a flexible, easy way to set up access privileges that extends well beyond the capabilities of System 7's File Sharing, and it provides data encryption.

Unlike with ultraSECURE, you don't have to create a special script to begin using Empower II. You simply install the Empower II control panel and restart. The first person to log in after restart is the de facto security administrator. The administrator uses the control panel to create users and groups as well as to set password, registration, lock-out, volume-lock, access-log, and encryption preferences. If you're using a SafeWord MultiSync card (a hardware device that accepts credit-card access), you can set card-authentication preferences as well.

Like ultraSECURE administrators, Empower II administrators can grant or prevent access to DAs, but they must do so on a person-by-person basis rather than by hierarchical levels. This allows for a finer degree of access control but entails a bit more work to set up.

Empower II's control panel uses a dialog box similar to ultraSECURE's. However, encryption (with DES or Magna's own Automatic) is not automatic. If you want to encrypt a file, you must select it individually and assign it a password.

Unlike ultraSECURE, Empower II doesn't use a multilevel hierarchical structure, so you can't set intermediate-level access privileges. However, by default, all users' individual files remain under their control. The administrator has the power to provide any user with access to all security levels and all users' files, but unless the administrator chooses to do so, users can maintain privacy.

Empower II creates an activity log that you can view via the control panel or export as a text file to a word processor. In addition, the administrator can prohibit

the use of floppy drives as startup disks or block their use altogether after startup, to prevent unauthorized access or stop the spread of viruses. A screen-locking screen saver is also included.

Empower II's manual is better organized and less confusing than is ultraSECURE's, and technical support is both helpful and easy to reach.

In addition to Empower II, Magna markets Empower I (\$169), a subset of II that offers basic volume protection. A third product, Empower Remote (\$396), may be available by the time this review appears. The package will provide all the features of Empower II, with the added ability to administer Empower II functions over a network.

Both Empower II and ultraSECURE are System 7-compatible and 32-bit clean. Empower II is not yet Quadra-friendly, but a fix should be available by the time you read this.

The Bottom Line

On a feature-by-feature basis, ultraSECURE outshines Empower II by offering more access and encryption options as well as virus protection and data-eradication tools. However, its Big Brother approach to security doesn't allow for individual privacy and its mediocre manual and questionable technical support may reduce its appeal to some users.

Empower II, although not as feature-rich as ultraSECURE, provides straightforward security that lets users maintain the privacy of their personal files.

— Tom Petaccia

Get Info

Empower II

★★★★

Published by: Magna, 332 Commercial Street, San Jose, CA 95112; (408) 282-0900.

Version: 4.0.7.

List Price: \$296.

ultraSECURE

★★★★

Published by: usrEZ Software, Inc., 1202 E. Pike Street, Suite 588, Seattle, WA 98122; (206) 672-5387.

Version: 1.2.

List Price: \$290.



Our Latest PostScript Printer Technology Impressed The Experts...

**QMS-PS 410
Now Only
\$1,995**



QMS-PS 410, 815 & 825 PostScript Laser Printers

- ESP - Emulation Sensing Processor (printer interprets incoming printer language and switches automatically)
- SIO-Simultaneous Interface Operation (allows the printer to receive data from three interfaces simultaneously)
- LocalTalk, RS-232C serial and Centronics parallel interfaces (connects to IBM® PC's, Apple® Macintosh® computers and most mini computers and mainframes)
- 45 resident Adobe PostScript typefaces (all can be scaled from 4 points upward, rotatable, all with multilingual character sets)
- Front Panel Display on QMS-PS 815 & 825 (16-digit multilingual LCD array conveys printer status, allows user to quickly configure printer)
- Resident HP LaserJet Series IIP & PostScript emulations (prints PostScript & HP applications, HP-GL emulation cards available)
- QMS ASAP III Technology and 68020 Microprocessor (exclusive technology means fast first-page-out performance)
- PS Executive Series™ Utilities Software (to easily set printer parameters)

...So We Decided To Give Them More Of A Good Thing.

Before we developed the QMS-PS® 410 four page-per-minute laser printer, we performed one very important task. We listened to what you wanted. Then we engineered a printer light years ahead of the rest with features that aren't available on other printers at any price.

And now, QMS brings you more of a good thing. The QMS-PS 815 and 825. Two eight page-per-minute laser printers with all the leading edge features of the 410 *plus* enhanced processing speed, an increased duty cycle and an easy-to-read, multilingual front panel that lets you quickly configure the printer to suit your specific needs.

Award-Winning Simplicity

How did these printers capture the imagination of an entire industry? The answer is, quite literally, simple! These leading edge printers are so simple to operate they seem to "think for you." Each printer features ESP® (Emulation Sensing Processor) which allows them to interpret incoming data and automatically choose the appropriate printer language without changing switch settings or sending complicated software commands. And to make things still simpler, the 410, 815

and 825 can receive data simultaneously to LocalTalk®, RS-232C serial and Centronics® parallel interfaces, which makes them the best on the market for mixed computer environments. All this and more is the result of QMS's exclusive ASAP™ III technology (Third Generation Advanced System Architecture for PostScript). And it's this proprietary QMS® technology that wins awards *and* customers.

True Adobe PostScript Plus HP Emulations

Whether you choose the 410, 815 or 825, you'll enjoy the desktop design flexibility of the latest version of Adobe® PostScript®. This most recent version includes the output enhancement of Adobe Type Manager™ (ATM). All printers come standard with 45 resident typefaces scalable from 4 points upward and fully rotatable. These PostScript printers guarantee compatibility with thousands of useful PostScript applications currently on the market.

For even greater flexibility, these printers feature standard HP® LaserJet® Series IIP emulation to support non-PostScript printing applications. And a variety of options makes the printers easily expandable. HP-GL®

emulation cards, HP compatible font cards, memory upgrades and extended paper handling capabilities are all currently available.

Expert Service And Support

As a recognized leader in PostScript printer technology, QMS maintains a commitment to customer satisfaction by providing free, responsive technical support. And to keep your QMS printer operating at its peak, QMS National Service offers a variety of service options. Call us today and see how QMS quite simply makes the best PostScript laser printers in the world. Or FAX QMS Product Information at (205) 633-4866.

1-800-523-2696 EXT. 2977

QMS 
Where Imagination Leads

The following are trademarks or registered trademarks of their respective companies: QMS, QMS-PS, ASAP, PS Executive Series and the QMS logo of QMS, Inc.; Adobe, PostScript, Adobe Type Manager and the PostScript logo of Adobe Systems, Inc.; Apple, Macintosh and LocalTalk of Apple Computer, Inc.; HP, LaserJet and HP-GL of Hewlett-Packard Company; Centronics of Centronics Data Computer Corp.; IBM of International Business Machines, Inc.
*patent pending

CIRCLE 50 ON READER SERVICE CARD.

Get *the* Classic Mac Clip-Art:

Get Wet!

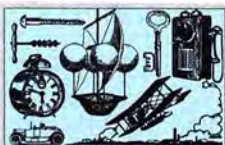
WetPaint™ Clip-Art.

Nine WetPaint volumes to choose from. Each contains hundreds of useful images drawn in a variety of styles for home or office. All original. All editable.

The critics choice. Don't just take our word for it. MacGuide magazine readers voted WetPaint a Golden Gavel Award. And MacUser rated WetPaint 5-Mice, saying "The clip-art is a must... WetPaint's ArtRoundup desk accessory is a necessity." ★★★★★



WetPaint Classic Clip-Art (1+2)
Popular, general interest images.



Industrial Revolution (1+12)
Tools, gadgets, and contraptions.



WetPaint For Publishing (3+4)
More "Classic" spot illustrations.



Old Earth Almanac (13+14)
A library of antique images.



WetPaint Animal Kingdom (5+6)
All Animals—and lots of 'em!



WetPaint Island Life (15+16)
From Australia to Hawaii.



Special Occasions (volume 7+8)
Holidays, feasting, and merriment.



WetPaint All the People (17+18)
People at work, home & play.



WetPaint Printer's Helper (9+10)
Borders, Frames, and dingbats.



The WetSet™
CD-Rom is all the WetPaint volumes in PictureBase, Mariah, and paint files. A limited version of Mariah is included, along with our MacTut Egyptian art. Just \$349.95.

Wet or Wild. Copy art directly from WetPaint files with our ArtRoundup™ desk accessory—free with every WetPaint volume! Or edit WetPaint art using popular programs like SuperPaint, MacPaint, and HyperCard.

Join the wet set. \$89.95 per volume of three 800K disks. 1/800/359-9079 to order, or for a free catalog.



Doing software your way ▶ We've been making software personal ever since Apple introduced Macintosh® back in 1984. Software flexible enough for you to customize. Software designed with you in mind.

Creators of: ArtRoundup • BigCaps • Calculator Construction Set • ClickChange • MenuFonts • WetPaint Clip-Art • World Class Fonts • World Class LaserType • All are trademarks of Dubl-Click Software, Inc. ©1991 9316 Deering Avenue • Chatsworth, California 91311 • 818/700-9525

NEW ON THE MENU

REVIEWS

PAINTING & IMAGE EDITING

Enhance

For powerful gray-scale image processing at an affordable price, nothing equals Enhance.

Despite the appeal of color images, when you get right down to it, most DTP image processing deals with gray scale. If you don't need the color image-processing capabilities of a high-end program such as Photoshop or ColorStudio, you'd do well to take a look at Enhance, an affordable gray-scale image-processing program that delivers more powerful features than any other program in its class.

Enhance is a sophisticated image processor that can open files in TIFF, PICT, MacPaint, or EPS formats. It processes 1-, 4-, and 8-bit graphic files and uses a virtual-memory scheme that can accommodate large images. In fact, the image size is limited only by your available disk space (or your patience for dealing with slow screen redraws and lengthy filter processing of large files).

Enhance's tools are predictable for a gray-scale image processor: pointer, hand (grabber), magnifying glass, dropper (for picking up specific grays from an image), selection tools (rectangle, oval, lasso, and magic wand), and paint tools (brush, eraser, pencil, airbrush, line, filled rectangles and circles, and paint bucket) as well as blur, smudge, sharpen, gradient (linear only), and font tools. Most of these tools have associated icons that appear at the bottom of the Tool palette and provide options for the selected tool.

What sets Enhance's Tool palette apart

from other programs', however, is its customizability. If you know you're not going to use the filled-object tools, for example, you can simply replace them with other tools you use frequently.

Enhance features a full set of image controls, including filters, masks, and anti-aliasing. The program's own suite of filters (which it calls *kernels* — apparently a misspelling of *kernels*) might initially seem anemic if you've used other image-processing programs. Gone are novelty filters such as Zigzag and Twirl. However, Enhance does supply all the important professional-level filters. You can also create your own custom filters and save them to disk.

In addition, Enhance accepts Photoshop-compatible plug-in filters. But be forewarned — the current version works only with Photoshop 1.0 plug-ins. Photoshop 2.0 plug-ins don't work with Enhance, which means that you can't use the striking Aldus Gallery Effects package with any success.

Enhance's mask control can match that of any high-end program. You can feather or blur masks to create softer, more natural transitions, and you can create and save your own masks. The program supports 1-, 4-, and 8-bit masks.

The anti-aliasing controls are impressive. You can apply anti-aliasing to selections and can configure several tools



Enhance outperforms all other gray-scale image-processing programs in its class. A unique feature is the customizable Tool palette (upper left corner of the screen) — you can swap tools you don't need for those you use frequently.

Network Your Personal Printers with Grappler®Share

(including the font tool) to apply anti-aliased characters and images directly.

Other nice touches include multiple levels of undo, real-time image editing without the need for previews, and a font tool that's an absolute joy to use. Unlike Photoshop's font tool, it doesn't spirit you off to another window that's separate from the original image. You can see the image as you type the text, making placement a snap. You can also append notes to images in a file-information box.

Although Enhance has plenty to recommend it, it's not always the most intuitive program to use. Its main weakness is the fuzzy terminology it uses for command names and menu items. The program sometime refers to filters as *convolution kernals* and at other times as *plug-in filters*. It would be less confusing simply to settle on the name *filters* and group them under a common menu item.

The program's documentation, however, provides valuable instruction on the sophisticated art of image processing. The manual's appendix on the fundamentals of filtering is especially helpful.

Minimum system requirements for using Enhance are a Macintosh SE/30, LC, or member of the Mac II series; at least 2 megabytes of RAM; System 6.0.3 or later; 32-bit Color QuickDraw (either as an INIT or hard-wired into ROM); and a hard-disk drive. The program is System 7-compatible but not -savvy.

The Bottom Line

Because of its confusing terminology, Enhance comes across as less polished than similar gray-scale image-processing programs such as Digital Darkroom and ImageStudio. Nonetheless, we prefer Enhance. Overall, the program's masking and anti-aliasing tools, customizable Tool palette, and informative documentation work together to make it a winning package.

— Gregory Wasson

Get Info

Enhance

★★★★½

Published by: MicroFrontier,
3401 101st Street, Suite E, Des
Moines, IA 50322; (515)
270-8109.

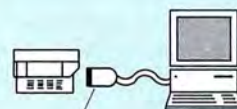
Version: 2.0.

List Price: \$375.

Orange Micro's new software innovation enables low-cost stand-alone printers to connect to the AppleTalk® network. GrapplerShare provides network users the ability to spool their print jobs to any of over 600 different personal printers such as Epson®, Panasonic®, Hewlett Packard®, Canon®, and even Apple®!

For HP Compatible Laser Printers:

The **Grappler IIs** is a serial/parallel intelligent cable which will connect all models of Hewlett Packard LaserJet, DeskJet, and HP compatible printers to your Mac for full 300 DPI desktop publishing quality print. With GrapplerShare installed, the entire network can share these printers through a user's Mac, or a dedicated server.



Grappler IIs (Laser, 300 DPI)

For Non-Apple Dot Matrix Printers:

If you have a parallel, dot matrix, IBM compatible printer, your Mac will require a serial to parallel converter. For 9 pin printers use the **Grappler II 9pin**, and for 24 pin models choose the **Grappler IIs**. All Grapplers come with spooling software for single Mac connections, as well as the GrapplerShare network software for AppleTalk.



Grappler II 9pin (For 9 Pin printers)

For Apple Personal Printers:

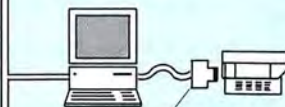
If you have an Apple Personal LaserWriter® LS, SC, IISC or a StyleWriter®, GrapplerShare is the ideal solution to transform those lonely printers into network savvy machines.



User or Dedicated Server

For Current Grappler Owners:

With 12 years of Apple enhancement experience and over 875,000 Grapplers in use, Orange Micro is strongly committed to support its customers. For users of the **Grappler IQ, LX, LS**, GrapplerShare upgrades are available separately providing AppleTalk compatibility for your printer.



Early Model Grappler IQ, LX, LS



Orange Micro®
Inc.

"12 Years of Innovation and Excellence"
1400 N. Lakeview Ave. Anaheim, CA 92807
(714) 779-2772

© Orange Micro, Inc. 1992

CIRCLE 58 ON READER SERVICE CARD.

LaserMerge™

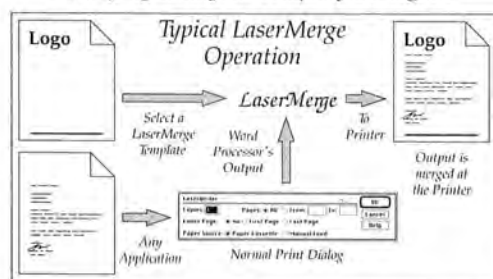
Print up to Eight Times Faster!

Thousands of you already know the power of *LaserMerge*...
...so why are the rest of you still printing the old fashioned way?

LaserMerge is revolutionizing the printing process by merging graphics and text images with the output of your favorite application at the printer... System 7 Compatible

LaserMerge layers PICT, PostScript, EPS, and other images (up to 63 layers) into your application output during the printing operation, with perfect registration, and without refeeding the paper to the printer...

With LaserMerge, you won't have to store your logos, letterheads, and other graphics in each and every piece of artwork. This saves disk space, time, and money, and produces perfect and consistent copy, in keeping with your company's image...



LaserMerge is loaded with features to make your everyday printing easier, faster, and less costly... For each layer, you control:

- X & Y origin
- X & Y scales
- Rotation
- Clipping
- Gray level
- Time-date stamps
- Paging & serialization
- Fills & negatives

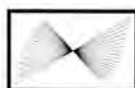
LaserMerge provides unprecedented control over multiple print jobs, allowing you to print thumbnails from any application, page number across jobs, generate forms with our master page, and preload definitions to reduce printing times and spool file size...

In testing, *LaserMerge* reduced the printing time of a 100-page mailing list (with logos) from 2 hours to 14 minutes!

So what are you waiting for? With our 30-day money-back guarantee, you can't afford to keep printing the old fashioned way!

1-800-MGT-6840
...for a limited time \$95

Feature help even without System 7 balloons!



MindGate Technologies, Inc.
Highway 275
Flintville, TN 37335
(615) 937-6800

LaserMerge works with LaserWriter, other PostScript printers, and with ImageWriter II printers, on Macintosh Plus and up, and with all applications using the standard print manager. *LaserMerge* and the *LaserMerge* logo are trademarks of MindGate. Suggested list price \$129.00.

CIRCLE 42 ON READER SERVICE CARD.

NEW ON THE MENU

REVIEWS

FONTS & TYPOGRAPHY

FontStudio 2.0

FontStudio 2.0's powerful new type-design features make the program the best in its class.

With version 2.0 of FontStudio, Letraset has significantly beefed up its type-design program by adding support for TrueType fonts, automatic and manual hinting, screen previews that use three different rasterizers, and interpolation for creating new fonts with intermediate weights. However, FontStudio exacts a price for its power, with an interface that vacillates between illuminating and irritating, making it difficult at times to access its professional-level tools.

Compared with rival Fontographer's straightforward, bare-bones interface, FontStudio's interface is densely packed and sometimes confusing. With Fontographer, you can simply open or create an outline-font file and immediately begin tweaking characters. FontStudio, on the other hand, requires that you open or create a separate font-family window before you can begin working with a font. The window displays icons that represent all the elements that make up a font family, including outline and bit-mapped fonts, style names, character encoding, and so on. Interface issues aside, however, FontStudio's ability to tweak characters, fine-tune metrics, and edit bit maps is unsurpassed.

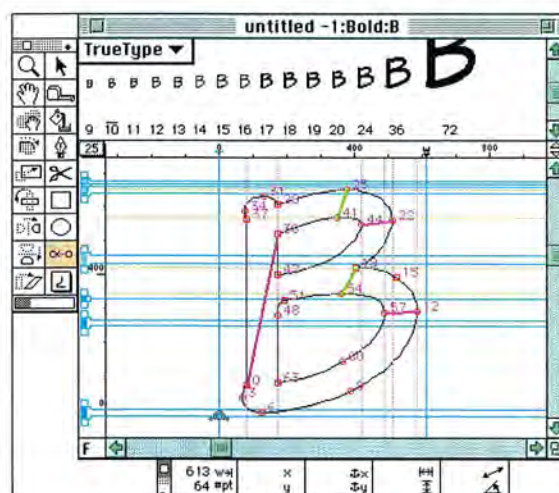
Fortunately, FontStudio supplies some neat tricks for speeding up the creation of

font families. For example, if you set out to modify existing PostScript typefaces, FontStudio can quickly create family files for some or all of the font families contained in even the most enormous font suitcase. FontStudio forces users always to think in terms of entire font families rather than in terms of single typefaces.

Once you've created a font family, you're ready to begin designing with FontStudio's powerful outline editor. The editor sports two floating palettes: one for tools, another for measurements. Here too the interface is somewhat cluttered and confusing, but the tools it provides are impressive. The character-parts library, for example, lets you store serifs and strokes and quickly apply them to characters. When you change a serif in the library, the change is reflected in all the characters that use that serif.

At first glance, FontStudio outlines, with their familiar Bézier control and anchor points, seem much like Illustrator's and FreeHand's. But subtle differences in FontStudio's approach to control points cancel out any experience you may have gained by using illustration programs.

New to version 2.0 is a split-screen window that displays a rasterized image of the outline character you're designing as well as a rasterized image of the



FontStudio 2.0 provides everything you need for sophisticated type design, including the powerful hinting tool shown here. However, the program's multi-faceted interface sometimes makes simple tasks complicated.

character. You can select one of three rasterizer options: Adobe Type Manager, TrueType, or FontStudio's own.

If you want to import characters to modify in FontStudio, rather than start from scratch, you can import existing Adobe, Bitstream, Fontographer, or Letra-Font typefaces. You can also paste artwork directly from Illustrator 1.1 into the outline-editor window. You can use PICT and TIFF files as templates to trace by hand or put the program's auto-trace tool to work to do the job for you.

FontStudio 2.0 also offers a unique new feature for creating a new font weight by interpolating between two existing weights. For example, by interpolating between a "light" and a "bold" font, you can generate a new medium-weight font.

The program also features a powerful automatic hinting algorithm as well as the ability to let users manually adjust the hinting for each character. When you open an existing outline, FontStudio preserves the hints in Adobe as well as

TrueType fonts. You can observe and edit hinting for individual characters as well as for an entire typeface, using FontStudio's histogram view.

Once you've hinted an outline, you can use it to generate bit-mapped fonts at any size and then edit them with FontStudio's excellent bit-map editor. You can also create gray-scale anti-aliased or color bit-mapped fonts for presentations or for use in high-resolution color applications such as Photoshop.

In addition to its new features, FontStudio continues to provide outstanding management tools for character metrics. The automatic and manual kerning capabilities of the program are especially impressive, including sophisticated spreadsheetlike formulas for precise control and the ability to automatically generate kerning pairs.

The Bottom Line

FontStudio's interface can sometimes make simple jobs more complicated than they should be. Moreover, the program's

outline editing is a bit unconventional, and it can generate only Macintosh fonts. Rival Fontographer's ability to generate Windows and NeXT fonts may turn out to be an advantage for mixed-platform environments.

On the other hand, FontStudio is impressive as a powerful, full-featured font editor. When it comes to hinting tools, font metrics and kerning, and unique features such as the ability to generate intermediate-weight fonts, FontStudio steals the show.

— Eric Taub

Get Info

FontStudio 2.0

ttt½

Published by: Letraset USA, 40 Eisenhower Drive, Paramus, NJ 07653; (201) 845-6100.

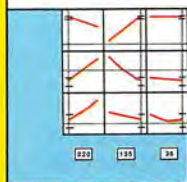
Version: 2.0.

List Price: \$595.

JUST DOE* IT.

BBN/CATALYST™ KNOWS HOW TO IMPROVE YOUR MANUFACTURING PROCESS. QUICKLY, INEXPENSIVELY.

The most powerful way to improve your manufacturing quality is through Design of Experiments. And the easiest way to implement DOE is with BBN/Catalyst for the Macintosh™. BBN/Catalyst helps you zero in on the right combination of factor settings which yield optimal results for your process.



Interpretation graph shows how each factor affects each response.

With Catalyst, you start solving quality problems within minutes, without trial and error techniques. You can do it better, faster, cheaper. Just DOE it with BBN/Catalyst.

Call 1 800 251-1717
(617 873-5000 in MA).



BBN Software Products

FREE!

Send for a free copy of BBN/Catalyst and the 20-page "Quick Start Guide" which shows how DOE can improve your process.

BBN/Catalyst for Macintosh computers.

\$595

To order, or for details, call BBN today.

**Call Toll Free 1 800 251-1717
(617-873-5000 in MA)**

NEW ON THE MENU
REVIEWS

FILE & DISK MANAGEMENT

Hard Disk ToolKit

FWB's formatting and partitioning software will help you get the most out of your hard drive, but you'd better know what you're doing.

FWB's Hard Disk ToolKit stretches the envelope of traditional formatting and partitioning software. In the hands of novices, its powerful features can easily wreak hard-disk havoc, but for those who know what they're doing, Hard Disk ToolKit provides unprecedented control for optimizing hard-drive capacity and performance.

The Primer Advantage

HDT Primer is the focal point of the package. Primer lets you format and partition a disk, perform diagnostic tests, and configure the HDT driver. It also lets you set several hard-disk-specific parameters, something you can't do with other Mac formatters. For example, if your drive allows it, you can redefine the disk's block size (the smallest storage unit it uses) before formatting. Until recently, 512 bytes per block was the standard for the Mac. However, most of the current crop of large-capacity drives support larger block sizes, and therein lies the Primer advantage. By defining a larger block size, you can boost both the performance and the usable capacity of a drive.

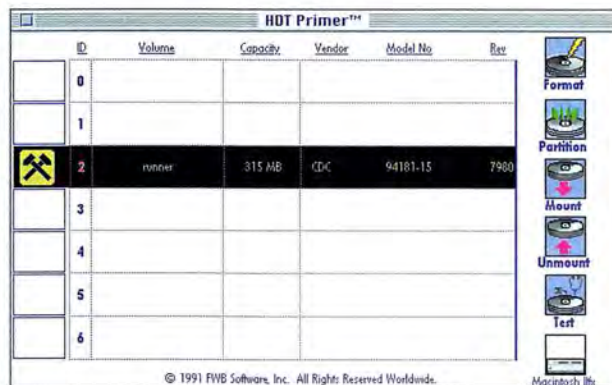
Once you've formatted your disk, you must make it accessible to the Mac operating system by partitioning it. HDT provides numerous standard partitioning options, including A/U/X. You can also

define custom partitions, but the process can be frustrating. Once you've defined a partition and its attributes, such as password protection and encryption, you must wait for Primer to initialize and mount the partition before continuing on to the next partition. If you're setting up a large disk with custom partitions, waiting for HDT to initialize each partition can be a trying experience.

HDT's competitor, La Cie's Silverlining, has more than its share of user-interface problems, but partitioning hassle is not one of them. With Silverlining, users can define all partitions at once and then leave the Mac unattended while the software initializes and mounts all of them. No muss, no fuss.

After formatting and partitioning a disk with HDT, you can choose to configure several driver attributes, including the drive's Finder icon and automatic driver-level bad-block reallocation.

Once your disk is set up, you're ready to use the HDT World Control module to fine-tune it. World Control is the first utility that lets you edit a hard-drive controller's SCSI mode pages, using the Mac interface. A drive's mode pages contain such preference settings as the controller's caching options and controller-level automatic bad-block reallocation. However, be forewarned that editing mode pages is not for casual users. If



Hard Disk ToolKit is state-of-the-art formatting software that supports just about any hard drive. The package includes several utilities, such as HDT Primer, shown here, that help you get the most out of your drive.

POWER BUNDLE

For the **Macintosh PowerBook!**

A SPECIALLY-DESIGNED CARRYING CASE FILLED WITH A TERRIFIC COLLECTION OF SOFTWARE FOR YOUR MACINTOSH POWERBOOK!

WriteNow works GREAT with System 7 and 2 megabytes! (The only word processor that can make this claim!)

America Online®
The graphical, easy-to-use online service for Macintosh owners

WriteNow®
Lightning-fast word processor that's optimized for the PowerBook! (Easy & MS® Word compatible)

ClickArt®
An innovative collection of electronic FAX cover sheets for business, home, and fun!

Business Expense Reports®
Automated business expense tracking and reporting (Includes standard business expense templates)

Carrying Case for the PowerBook
A high-quality carrying case, custom-made for the Macintosh PowerBook!

T/Maker.

A \$588.80 Value for \$249.95 (Suggested Retail Price)

1390 Villa Street • Mountain View, CA 94041
415/962-0195 • Fax: 415/962-0201

TM445

CIRCLE 86 ON READER SERVICE CARD.

done incorrectly, changing a controller's settings may result in lost data, or — even worse — it may make the drive inaccessible to the Mac. Unless you know precisely what you're doing, steer clear of World Control.

Testy Program

HDT also supplies a benchmarking program called BenchTest. Ostensibly, BenchTest is designed to let you see whether the changes you've made with Primer and World Control benefit the drive's performance. BenchTest lets you weight the tests based on the applications you use. That's because different applications use disks in different ways: Graphics applications, for example, read and write to the disk far less frequently than do software-development tools.

HDT also gets high marks for its manual. It's the first comprehensive Macintosh-specific SCSI reference that goes out of its way to explain, in detail, exactly how the Mac interacts with SCSI devices. For example, the manual dis-

cusses each of the SCSI mode pages and the effects of their various settings.

The HDT package also supplies several less impressive, but nonetheless handy, utilities. HDT Prober is a control panel that's similar in function to the Freeware SCSI Probe control panel. HDT Extension is designed primarily to mount removable SCSI drives that can be somewhat recalcitrant at startup. It also allows removable media inserted after startup to mount immediately. HDT Util is a mixed bag of features: Worthy of mention are a utility that lets you set the size of the system heap and another that lets you control how long a disk spins up before your Mac tries to boot from it.

The Bottom Line

FWB's Hard Disk ToolKit redefines the state of the art for Mac formatting, partitioning, and hard-disk utility software. Highlights are HDT Primer — the only Mac utility that allows users to set hard-disk-specific parameters — and the World Control utility, which provides a

way to edit hard-drive-controller SCSI mode pages, using the Mac interface. HDT is not for the faint of heart, however — it's powerful enough to make your hard drive inaccessible from your Mac if you don't use it correctly. But if you're an experienced user or if you're looking to standardize on a single powerful driver and utility package that supports most of the drives you're likely to encounter for the Mac, you'll find that HDT and its comprehensive manual fill the bill.

— Stephan Somogyi

Get Info

Hard Disk ToolKit

\$\$\$ 1/2

Published by: FWB, Inc., 2040 Polk Street, Suite 215, San Francisco, CA 94109; (415) 474-8055.
Version: 1.0.
List Price: \$199.95.

MACQUILL IS A COMMON SENSE FULL FEATURED WORD PROCESSOR, AND WITH A CLICK OF THE MOUSE CAN CONVERT WORD PROCESSING TO PAGE LAYOUT, OR BACK TO WORD PROCESSING.

MacQuill

WORD PROCESSING AND PAGE LAYOUT IN ONE.

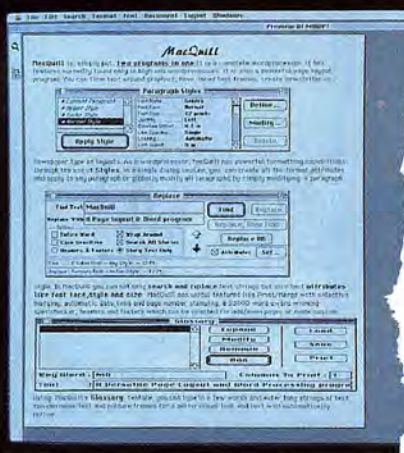
Introducing MacQuill.
The Word Processing / Page Layout program in **one**, that's simple to use.
Sug. Retail \$149.
Introductory Price \$99.

Mail us your MacQuill registration card and a disk containing a MacQuill document you created, and we will send you a certificate to be our guest for 4 days at a fabulous resort, *your choice*

Palm Springs Ca.; Orlando FL;
Ft. Lauderdale FL.; Las Vegas Nv.;
Hilton Head Island Sc.
1 800 524 3315

N E S T
S O F T W A R E
Where ideas are born, take off and fly.
CIRCLE 70 ON READER SERVICE CARD.

MACQUILL IS SO EASY TO USE YOU CAN BE DOING PAGE LAYOUTS, CREATIVE FLYERS, STORIES WITH TEXT FRAME LINKING ABILITIES, NEWS-LETTERS, LOGOS, ADS, GRAPHIC IMPORTING IN MINUTES.



"How long will

1991 Macworld World Class Award Nominee for Best Customer Support-Software. Since 1984, the original Mac mail-order source.

Our **System 7 Video** featuring Macworld Contributing Editor Lon Poole is just \$9 (2244) or free when you order Apple's System 7 for \$99 (1074). We also have Lon's Macworld Guide to System 7 for \$19 (2238).

Products preceded by ⑦ are compatible with **System 7**. For specific features of System 7, please ask your salesperson when placing your order.

Companies participating in the 30 or 60 day **Money Back Guarantee** program are highlighted with a ★. If you are not satisfied with your purchase of any MBG item, call us for an authorization and return it with all of the original packaging within the guarantee period for a refund check (or credit on your credit card). We reserve the right to limit quantities on returns.

We have over 3,500 items to choose from, and we carry only the very **latest versions** of each product. For products or versions not yet released at press time we've indicated the expected availability dates as supplied to us by the manufacturers. Also, all software is not copy-protected, unless indicated otherwise by (CP).

Corporate Accounts welcome. Bids and P.O.'s accepted. Please call 800/800-4444 for information.

COMPUTERS

Outbound Systems, Inc.

A MacConnection exclusive. Each Outbound Notebook includes a 1.4 Floppy Drive, slip case, power supply & a limited time special software bundle offer valued over \$400.

⑦ 2030E Series (25 MHz 68ec030)

2161	440: 4 MB, 40 MB HD	\$2799.
2147	442: 4 MB, 40 MB HD (incl. math copro.)	2899.
2110	460: 4 MB, 60 MB HD	2899.
2109	462: 4 MB, 60 MB HD (incl. math copro.)	2999.
2660	860: 8 MB, 60 MB HD	3139.
2659	862: 8 MB, 60 MB HD (incl. math copro.)	3249.
2655	880: 8 MB, 80 MB HD	3399.
2653	882: 8 MB, 80 MB HD (incl. math copro.)	3499.
2651	1660: 16 MB, 60 MB HD	3639.
2730	1662: 16 MB, 60 MB HD (incl. math copro.)	3759.
2714	1680: 16 MB, 80 MB HD	3859.
2712	1682: 16 MB, 80 MB HD (incl. math copro.)	3999.



★ Softsync, Inc. ... 30 day MBG

7129 ⑦ *Accountant, Inc. 3.0*—1991 MacUser Editors' Choice Award for Best Accounting Package. "The most complete integrated accounting and financial mgmt. package," *MacUser* (3/91). \$335.
3828 ⑦ *Accountant, Inc./MultiUser 1.0* ... 569.

	⑦ 2030S Series (33 MHz 68ec030)	
2108	440: 4 MB, 40 MB HD	\$3199.
2107	442: 4 MB, 40 MB HD (incl. math copro.)	3299.
2106	460: 4 MB, 60 MB HD	3399.
2105	462: 4 MB, 60 MB HD (incl. math copro.)	3499.
2711	860: 8 MB, 60 MB HD	3639.
2684	862: 8 MB, 60 MB HD (incl. math copro.)	3759.
2673	880: 8 MB, 80 MB HD	3859.
2669	882: 8 MB, 80 MB HD (incl. math copro.)	3999.
2668	1660: 16 MB, 60 MB HD	4099.
2665	1662: 16 MB, 60 MB HD (incl. math copro.)	4229.
2664	1680: 16 MB, 80 MB HD	4349.
2661	1682: 16 MB, 80 MB HD (incl. math copro.)	4499.

DAILY BUSINESS ACCOUNTING, DATABASES, SPREADSHEETS, WORD PROCESSING

A Lasting Impression

- ⑦ ResumExpert or Cover Letters ... ea. 48.
- ⑦ Other ResumExpert Editions ... ea. 48.

★ Aatrix ... 30 day MBG

3976	⑦ Payroll 4.0	112.
------	---------------	------

Abacus Concepts

4482	⑦ StatView SE + Graphics 1.04	219.
4481	⑦ StatView II	309.



★ Microsoft ... 30 day MBG

3669 ⑦ *Excel 4.0*—Excel has led the Mac spreadsheet market in ease-of-use and design innovation since 1985. It's powerful, intelligent, feature-rich, and remarkably easy-to-use—just the way an award-winning spreadsheet should be ... \$295.

	★ Acius ... 30 day MBG	
4024	⑦ 4th Dimension 2.2 Runtime (4-user)	345.
5618	⑦ 4th Dimension 2.2.1	519.
7838	⑦ 4D Compiler 1.0.2	889.
	★ Amaze, Inc.	
3582	⑦ The Far Side Computer Calendar	45.
	★ Avery ... 60 day MBG	
7446	⑦ MacLabel Pro 1.5	48.
	★ Banner Blue ... 30 day MBG	
3548	⑦ Org Plus Advanced 1.0	125.
	★ Baseline Publishing ... 30 day MBG	
8881	⑦ Thunder 7 1.0.5	55.
	★ Beagle Bros. ... 30 day MBG	
3119	⑦ BeagleWorks 184. 3563 ⑦ Upgrade	95.
	★ Checkfree Corp. ... 30 day MBG	
6928	⑦ Checkfree Mac 1.5	19.
	★ CheckMark Software ... 60 day MBG	
5862	⑦ Payroll 4.6	172.
5863	⑦ MultiLedger 2.0 229. 3767 MultiUser	359.
	★ Chena Software ... 30 day MBG	
1594	⑦ Fair Witness 1.1	315.
	★ Claris ... 30 day MBG	
1129	⑦ MacWrite II 1.1V2	89.
3903	⑦ ClarisWorks 1.0 199. 3743 ⑦ Upgrade	95.
3531	⑦ Claris Resolve 174. 3745 ⑦ Upgrade	95.
8216	⑦ FileMaker Pro 1.0V2	199.
1125	⑦ MacProject II 2.5V1	345.

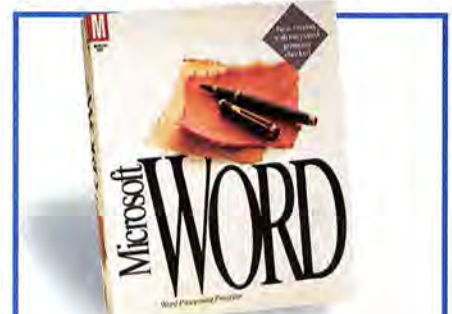


★ Good Software ... 30 day MBG

2527 ⑦ *REMS Property Manager 3.01*—Calling all landlords. Integrated accounting & information mgt. system for up to 500 rental units. Up-to-the-minute info on tenants & vendors. Plus, generates 70+ financial/mgt. reports ... \$399.

★ Essential Software ... 30 day MBG

4086	⑦ Easy Alarms 1.5	31.
	★ Fox Software	
5572	⑦ FoxBASE +/Mac 2.01	289.
	★ Franklin Software ... 30 day MBG	
7070	Language Master 2.0	45.
	★ Good Software ... 30 day MBG	
2527	⑦ REMS Property Manager 3.01	399.
	★ Individual Software ... 30 day MBG	
9640	⑦ Resume Maker 1.0	26.
	★ Informix	
4955	⑦ Wingz 1.1A	245.
	★ Intuit ... 30 day MBG	
2507	⑦ Quicken 3.0	42.
	★ JAM Software USA ... 30 day MBG	
6089	⑦ Smart Alarms with Appt. Diary 3.0.7	63.
	★ Kaetron Software ... 30 day MBG	
1091	⑦ Flow Chart Express	93.
8941	⑦ TopDown 3.1	199.
	★ Lotus Development ... 60 day MBG	
3606	⑦ 1-2-3 for the Mac 329. 3604 Upgrade	95.
	★ Mainstay ... 30 day MBG	
7718	⑦ MacFlow 3.55	185.
	★ MECA ... 60 day MBG	
2796	⑦ Managing Your Money 4.0	99.
	★ Microlytics ... 60 day MBG	
9729	⑦ Strunk & White's Elements of Style	34.
7820	⑦ Random House Encyclopedia 1.0	68.



★ Microsoft ... 30 day MBG

4902 ⑦ *Word 5.0*—New features include an integrated grammar checker, Drag-and-Drop text, and a new Print Merge Helper. Whether you're a beginner or an expert, Word offers all the tools you need to make everyday easier ... \$295.

it take to see



OCCAM Research Corporation

3697 **MUSE 1.0**—Relational database power with the simplicity of a natural language spreadsheet. Rave reviews! "MUSE excels at ad hoc analysis!" *MacWEEK* showpick for Macworld...1992 Eddy Watch selection. \$469.

★ Microsoft ... 30 day MBG		
2884	Works 2.00E	155.
3669	Excel 4.0 (Apr. '92)	295.
4902	Word 5.0.	295.
2565	Project 1.1	445.
5454	The Microsoft Office 2.0	475.
★ Niles & Associates ... 30 day MBG		
5048	EndLink 1.1.3 58. 4602 EndNote 1.4	85.
8010	EndNote Plus 1.2 (Apr. '92)	145.
★ Nolo Press ... 30 day MBG		
4228	For the Record 2.0	30.
2981	WillMaker 4.0 (not valid in LA.)	35.
1204	Living Trust 1.0	45.
OCCAM Research Corporation		
3697	MUSE 1.0	469.
OCR Systems		
9926	ReadRight for Macintosh	309.
Paragon Concepts		
5683	Nisus 3.06. 238. 1612 Compact 3.3.	93.
★ Pastel Development ... 30 day MBG		
1785	DayMaker 1.01	61.



★ **Pastel Development ... 30 day MBG**
1785 **DayMaker 1.01**—A premier personal informational manager to record and retrieve data with ease. Switch between daily, weekly or monthly views with an unlimited number of user-defined tags. \$61.

★ Portfolio Systems ... 30 day MBG		
3448	SmartScrap & The Clipper 2.1	\$56.
7992	DynoPage 1.7 or 6916 Dynodex	ea. 72.
★ PowerUp ... 30 day MBG		
7696	Calendar Creator 1.01	44.
7694	Address Book Plus 2.01	63.
★ Provue ... 60 day MBG		
4582	Panorama II 2.0.5	239.
★ Que Corp. ... 30 day MBG		
7482	RightWriter for the Mac 3.1	54.
★ Reality Technologies ... 30 day MBG		
6929	WealthBuilder 1.02	95.
★ Reference Software ... 30 day MBG		
6268	Grammatik Mac 2.0	58.
Round Lake Publishing		
9946	LetterWorks, 9945 SALES LetterWorks, or 9947 LEGAL LetterWorks	ea. 45.
5473	Professional LetterWorks	51.
★ Shana ... 30 day MBG		
8810	Informed Mgr. 99. 7692 Designer.	159.
★ Softsync, Inc. ... 30 day MBG		
7129	Accountant, Inc. 335. 3828 MultiUser	569.
Software Toolworks		
8366	Dollars & Sense 5.0	59.
★ Spyglass ... 60 day MBG		
2027	Transform 2.1 or 2028 Dicer 1.1	ea. 399.
★ Survivor Software ... 30 day MBG		
3289	MacMoney 3.52	58.
★ Symantec ... 30 day MBG		
2237	GreatWorks 2.0. 199. 2278 Upgrade.	99.
3422	More 3.1	265.
★ Symmetry ... 30 day MBG		
3131	Acta 7 1.0	75.
★ Synergy ... 30 day MBG		
6617	KaleidaGraph 2.1.3	150.
★ Teleware ... 30 day MBG		
7616	M.Y.O.B. 2.1	138.
★ TIMESLIPS ... 30 day MBG		
2986	Timeslips III 2.1	194.
8939	Accounting Link 1.0B	52.
★ T/Maker ... 30 day MBG		
3639	WriteNow 3.0 (Mar. '92)	155.
3508	The PowerBundle (with carry case)	159.
★ Williams & Macias ... 30 day MBG		
4976	StickyBusiness 1.5	51.
6926	myDiskLabeler III 3.1	42.
★ WordPerfect ... 60 day MBG		
3800	WordPerfect Mac 2.1	295.
3090	WordPerfect Office 3.0 (single)	89.
3092	WP Office (5 pack) 295. 3088 (20 pack)	895.
★ Wordstar ... 30 day MBG		
3554	American Heritage Dictionary	55.
6984	Correct Grammar 3.0	55.
★ Wyoming Software ... 30 day MBG		
3555	Business Sense 1.5	124.

GRAPHICS & DESIGN PUBLISHING, PRESENTATIONS

★ Abracadata, Ltd. ... 30 day MBG		
9995	Instant Decorator 1.1	29.
9990	Design Your Home - Architecture, 9992 Interiors, or 9994 Landscape	ea. 63.
Adobe Systems		
8794	Adobe Type Library (Vol. 1-260)	call
6957	Adobe Type On Call	47.
5750	Adobe Type Reunion 1.0.2	41.
6053	Adobe Type Manager 2.0.3	59.
6156	Adobe Plus Pack 2.0	118.
6098	Adobe Plus Pack/ATM	174.
	TypeAlign for ATM 1.0.4	62.



OCR Systems

9926 **ReadRight for Macintosh**—ReadRight for Macintosh is an omnifont OCR product that offers advanced features and a high degree of accuracy (99.9%) at an affordable price. \$309.

5001	Streamline 2.0	122.
4145	Adobe Premiere 1.0	305.
8171	Adobe Illustrator 3.2 (with ATM)	368.
6644	Adobe Photoshop 2.01	548.
6671	Adobe Type Set 1 or 6677 Type Set 2	62.
7587	Adobe Type Set 3	125.
Adobe Type Sets for Business:		
2221	Letters, Memos & Faxes	95.
2223	Invitations & Awards	95.
2219	Spreadsheets & Graphs	95.
2222	Overheads & Slides	95.
★ Aldus ... 30 day MBG		
6674	Aldus Personal Press 1.01	109.
2461	Aldus Gallery Effects 1.0	128.
3506	Aldus SuperPaint 3.0	132.
3980	Aldus Digital Darkroom 2.0	259.
3507	Aldus Super 3D 2.5	325.
7467	Aldus PrePrint 1.51	325.
4751	Aldus Persuasion 2.1	325.
1330	Aldus FreeHand 3.1	394.
7088	Aldus PageMaker 4.2	494.



★ **MicroFrontier ... 30 day MBG**
3013 **Color It! 1.0**—Full-featured 32 bit color paint program. Sharpen, blur and smudge tools help retouch images. Image masks, antialiasing virtual images, multiple undos, and scanner support are also supported. \$73.

400U

MMG
Macintosh Marketing Group

MacConnection®

14 Mill Street, Marlow, NH 03456 603/446-7711 FAX 603/446-7791

If that package



春花秋月 拜啓 お客様各位 皆様に御提

★Linguist's Software ... 60 day MBG

1986 AnyText Search Engine	\$79.
1999 MacChinese Traditional	79.
2639 Laser French/German/Spanish	79.
2640 LaserGreek	79.
2641 LaserHebrew	89.
2569 Cyrillic II	99.

Altsys

9806 Metamorphosis Pro 2.03	89.
1983 EPS Exchange 2.0	89.
1195 Fontographer 3.5	262.

★Ares Software ... 30 day MBG

8878 FontMonger 1.05	62.
----------------------	-----

★Baseline Publishing ... 30 day MBG

8055 Screenshot 1.2	34.
---------------------	-----

Bitstream

2249 Type Treasury CD (Type 1 & True Type Fonts)	45.
--	-----

Fluent Font Library 4.05 (coordinated collections) call

Broderbund Software

3572 Kid Pix 1.2	34.
------------------	-----

1427 The Print Shop 1.3.2	35.
---------------------------	-----

6281 TypeStyler 2.0 (with ATM)	126.
--------------------------------	------

★Casady & Greene ... 30 day MBG

8879 Fluent Font Library 4.05	99.
-------------------------------	-----

1945 True Type Starter Set	57.
----------------------------	-----

★Claris ... 30 day MBG

1123 MacPaint 2.0	86.
-------------------	-----

2518 MacDraw Pro 1.01	275.
-----------------------	------

8007 Claris CAD 2.0	625.
---------------------	------

Custom Applications

8037 Freedom of Press Light 3.03 (17 fonts)	84.
---	-----

★DeltaPoint ... 60 day MBG

3558 DeltaGraph Pro	205.
---------------------	------

★Deneba Software ... 30 day MBG

3227 Canvas 3.02	248.
------------------	------

3G Graphics

NEW! People 1—Our Best Yet!
2003 Images with Impact: People 1—Populate your Mac with People 1—over 230 images of persons of all ages, races, & livelihoods. Categories are: Business, Arts & Entertainment, Industry, Healthcare, Fitness, and Sports... \$94.



★Expert Software ... 30 day MBG

4870 Expert Color Paint 1.0	\$29.
-----------------------------	-------

★Foundation Publishing ... 60 day MBG

9438 Comic Strip/People & Kid Stuff	71.
-------------------------------------	-----

IDD/Innovative Data Design

2417 MacDraft 2.1	279.
-------------------	------

★Letraset ... 30 day MBG

4709 LetraStudio 2.0 (Apr. '92)	139.
---------------------------------	------

FontTEK Typeface Collection ea. 30.

Light Source

3733 Ofoto	279.
------------	------

★Linguist's Software ... 60 day MBG

Over 100 language fonts call

1986 AnyText Search Engine	79.
----------------------------	-----

1999 MacChinese Traditional	79.
-----------------------------	-----

2639 Laser French/German/Spanish	79.
----------------------------------	-----

2640 LaserGreek	79.
-----------------	-----

2641 LaserHebrew	89.
------------------	-----

2569 Cyrillic II	99.
------------------	-----

★MacroMind•Paracomp ... 30 day MBG

3148 Magic	275.
------------	------

7441 Swivel 3D Professional 2.0	479.
---------------------------------	------

3450 SwivelMan 1.0	619.
--------------------	------

★Mainstay ... 30 day MBG

9798 Capture 4.0	82.
------------------	-----

★MicroFrontier ... 30 day MBG

3013 Color It! 1.0	73.
--------------------	-----



★Alysis Software ... 30 day MBG

1608 More Disk Space—Invisibly double the capacity of your hard drive with a single click of the mouse. ... special \$42.

2687 SuperDisk!—Selectively compress individual files, folders, & volumes on-the-fly.. 49.

★MicroMaps ... 30 day MBG

7556 MapArt (PICT) or 7555 (EPS)	ea. 89.
----------------------------------	---------

2791 Global Perspectives	25.
--------------------------	-----

★Microsoft ... 30 day MBG

2878 PowerPoint 2.01E	245.
-----------------------	------

★Monotype Typography ... 30 day MBG

Monotype Imprints-TrueType	ea. 22.
----------------------------	---------

Classic Fonts (full line available) call

Postcraft International

2210 Effects Specialist 1.04	89.
------------------------------	-----

2200 Layouts PageMaker or 2414 QuarkXPress	69.
--	-----

Quark

7612 QuarkXPress 3.1	569.
----------------------	------

★Specular International ... 30 day MBG

4962 Infini-D 1.1	647.
-------------------	------

Replicas (volume 1 or 2) ea. 189.

★Spinnaker ... 30 day MBG

3530 Certificate Maker 2.02	22.
-----------------------------	-----

Strata

7773 Stratavision 3D 2.5	629.
--------------------------	------

★SuperMac Technology ... 60 day MBG

3380 PixelPaint 2.1	149.
---------------------	------

5625 Pro	459.
----------	------

★Symmetry ... 30 day MBG

8172 Mariah 1.0	93.
-----------------	-----

3G Graphics

3942 Images with Impact: Graphics 1	49.
-------------------------------------	-----

6379 Accents & Borders I	63.
--------------------------	-----

4583 Business 1	63.
-----------------	-----

2003 People 1	94.
---------------	-----



★Expert Software ... 30 day MBG

4870 Expert Color Paint 1.0—New! The latest in painting tools at an incredible price. You get hot 32-bit color, image editing, and tools that may be customized, anti-aliasing, virtual memory and System 7 support ... \$29.

★Timeworks ... 30 day MBG

7115 Publish It! Easy 2.1 with File-It!	145.
---	------

★T/Maker ... 30 day MBG

ClickArt (7 bitmapped)	ea. 38.
------------------------	---------

ClickArt (5 EPS formats)	ea. 82.
--------------------------	---------

1858 ClickArt for Faxes	45.
-------------------------	-----

1292 ColorGraphics for Presentations	109.
--------------------------------------	------

★Virtus Corporation ... 30 day MBG

4488 WalkThrough 1.03	309.
-----------------------	------

PROGRAMMING

UTILITIES, HYPERCARD, SECURITY

★Abbott Systems ... 30 day MBG

2515 Calc+ 1.0	39.
----------------	-----

5236 CanOpener 2.0	62.
--------------------	-----

★Advanced Software ... 30 day MBG

8051 Intouch 1.1	39.
------------------	-----

9986 Network (3-Pak)	112.
----------------------	------

After Hours Software

1352 TouchBASE 2.0	79.
--------------------	-----

3314 DateBook (Mar. '92)	79.
--------------------------	-----

★Aladdin Systems ... 30 day MBG

6740 StuffIt Deluxe 3.0 (Apr. '92)	59.
------------------------------------	-----

★Aldus ... 30 day MBG

5100 Aldus SuperCard 1.6	195.
--------------------------	------

★ALSoft ... 30 day MBG

9808 MasterJuggler 1.57	25.
-------------------------	-----

9807 DiskExpress II 2.11	49.
--------------------------	-----

5204 ALSoft Power Utilities 1.0	69.
---------------------------------	-----

★Alysis Software ... 30 day MBG

2687 SuperDisk!	49.
-----------------	-----

1608 More Disk Space	special 42.
----------------------	-------------

Apple Computer

1074 System 7 (with free PCTV video)	99.
--------------------------------------	-----

★ASD Software ... 30 day MBG

7085 FileGuard 2.7 (1 user)	138.
-----------------------------	------

7422 (5 user)	479.
---------------	------

7423 (10 user)	799.
----------------	------

5313 Active Memory 2.0 (1 user)	125.
---------------------------------	------

5314 (5 user)	315.
---------------	------

5315 (10 user)	625.
----------------	------

2552 WindoWatch (1 user)	93.
--------------------------	-----

2549 (5 user)	279.
---------------	------

2548 (10 user)	469.
----------------	------

★Baseline Publishing ... 30 day MBG

7783 INIT Manager 1.1	33.
-----------------------	-----

3114 INIT Info Pro	39.
--------------------	-----

★Berkeley Systems ... 30 day MBG

5737 After Dark 2.0V	28.
----------------------	-----

2198 More After Dark (M.A.D.)	23.
-------------------------------	-----

2196 After Dark & M.A.D. Bundle	40.
---------------------------------	-----

1541 Stepping Out II 2.02	49.
---------------------------	-----

Bright Star Technology

2614 At Your Service 29	3994
-------------------------	------

Actors (six)	55.
--------------	-----

★Casa Blanca Works ... 30 day MBG

1593 Drive 7 2.0	51.
------------------	-----

1573 DriveShare (Mar. '92)	89.
----------------------------	-----

is just right for me?"



★ **Dantz Development ... 30 day MBG**
3393 ⑦ *DiskFit Pro 1.0*—Provides fast, easy, efficient backup to disks, cartridge, or optical media. Copies only new versions of files to the backup, keeping backup sets compact. Files are stored in Finder format for easy retrieval. . . \$74.

- ★ **Casady & Greene ... 30 day MBG**
2269 ⑦ *QuickDEX 2.3* . . . 22. 2528 (5 Pak) . . . 99.
4485 ⑦ *Crash Barrier 1.0* . . . 45.
- ★ **CE Software ... 60 day MBG**
1727 ⑦ *CalendarMaker 3.0.1* . . . 31.
6278 ⑦ *DiskTop 4.01* or 3376 ⑦ *Tiles 1.0* . . . 63.
7518 ⑦ *Alarming Events 1.03* . . . 84.
8024 ⑦ *QuickKeys 2.11* . . . 93.
1565 ⑦ *QuickKeys 2 (10 user)* . 749. 1561 (50). 2799.
- ★ **Central Point ... 30 day MBG**
5041 ⑦ *Mac Tools Deluxe 1.2* . . . 79.
- ★ **Claris ... 30 day MBG**
8734 ⑦ *HyperCard Development Kit 2.1* . . . 139.
- ★ **Connectix ... 30 day MBG**
7830 ⑦ *Maxima 2.0.1* . . . 45.
6647 ⑦ *HandOff II 2.2.1* . . . 55.
- ★ **Dantz Development ... 30 day MBG**
3393 ⑦ *DiskFit Pro 1.0* . . . 74.
5255 ⑦ *Retrospect 147*. 7945 ⑦ *Remote 1.3* 264.
7946 ⑦ *Remote (10 Pak)* 147. 3112 ⑦ (50 Pak) 649.
- ★ **Dubl-Click Software**
6653 ⑦ *MenuFonts 4.0* . . . 44.
7974 ⑦ *ClickChange 1.05.2* . . . 56.
- ★ **ElseWare Corp. ... 30 day MBG**
4871 ⑦ *Checklist 2.0* . . . 89.
1507 ⑦ *Bar Code Kit* or 1506 ⑦ *DataShaper* ea. 135.
- ★ **Fifth Generation ... 30 day MBG**
4287 ⑦ *PYRO! 4.01* . . . 27.
3955 ⑦ *Suitcase II 2.0* . . . 53.
8286 ⑦ *SuperLaserSpool 3.0* . . . 99.
5178 ⑦ *FastBack Plus* or 5725 ⑦ *DiskLock* ea. 127.
- ★ **FWB, Inc. ... 30 day MBG**
2999 ⑦ *Hard Disk Toolkit 1.0* . . . 125.
- ★ **ICOM Simulations ... 30 day MBG**
3731 ⑦ *OnCue II 2.0* . . . 56.
- ★ **Insight Development ... 30 day MBG**
6171 ⑦ *MacPrint 1.3* . . . 92.
- ★ **Kensington ... 30 day MBG**
9301 ⑦ *PassProof (right)* 65. 9300 ⑦ (left) ea. 65.
2011 ⑦ *PP Classic* or 1632 ⑦ *PP IIsi* ea. 65.
- ★ **Kent Marsh Ltd. ... 30 day MBG**
9513 ⑦ *FolderBolt 1.02* . . . 73.
1839 ⑦ *The NightWatch II (Mar. '92)* . . . 89.
- ★ **Kiwi Software ... 60 day MBG**
6267 ⑦ *Kiwi ENVELOPES! 3.1.5* . . . 32.
3518 ⑦ *Kiwi POWER WINDOWS* . . . 50.

- ★ **Magic Software ... 30 day MBG**
7267 ⑦ *AutoSave II* or 7268 ⑦ *POWERIcons* . . \$26.
7270 ⑦ *Backmatic 2.01* . . . 50.
- ★ **Microcom ... 30 day MBG**
4803 ⑦ *Virex/Mac* . . . 57. 5885 ⑦ (10 user) . . 399.
8561 ⑦ 911 Utilities or 2462 ⑦ *Citadel w/Shredder* 89.
- ★ **MicroMat Computer Systems**
3732 ⑦ *MacEKG II (Mar. '92)* . . . 110.
- ★ **Microseeds Pub. ... 60 day MBG**
7068 ⑦ *INITPicker 2.02* . . . 34.
2913 ⑦ *Redux 1.63* or 2936 ⑦ *HAM* . . . 49.
- ★ **Microsoft ... 30 day MBG**
4471 *QuickBasic 1.0* . . . 64.
- ★ **Nine to Five Software ... 30 day MBG**
9767 ⑦ *Reports 2.1* . . . 94.
2832 ⑦ *Attributes 2.0* 50. 2835 ⑦ *Search 2.0* 62.
- ★ **Now Software ... 30 day MBG**
1793 ⑦ *Now Up-To-Date 1.0* . . . 65.
2371 (5 user) . . . 265. 2366 (10 user) . . . 395.
6925 ⑦ *Now Utilities 3.01* . . . 83.
- ★ **ON Technology ... 1 year MBG**
6385 ⑦ *On Location 2.0* . . . 75.
1566 ⑦ *STATUS-Mac 2.0.2 (unlimited)* . . . 749.
- ★ **Palomar Software**
8210 ⑦ *PLOTTERgeist 2.0* . . . 249.



★ **Dubl-Click Software**
6653 ⑦ *MenuFonts 4.0*—Makes selecting fonts quicker and easier. Fonts are grouped by family and shown in their typeface. Tell True Type, PostScript and Bitmapped fonts apart at a glance, totally customizable. . . \$44.

- ★ **Salient Software ... 30 day MBG**
7404 ⑦ *DiskDoublers 3.7* . . . 45.
4838 ⑦ *AutoDoublers 1.0* . . . 45.
- ★ **Symantec ... 30 day MBG**
5176 ⑦ *Symantec AntiVirus for Mac (SAM)* . . . 64.
5724 ⑦ *Symantec Utilities for Mac (SUM II)* . . . 96.
6748 ⑦ *Norton Utilities for the Mac 1.1* . . . 79.
3421 ⑦ *THINK Pascal 4.0* . . . 165.
2688 ⑦ *THINK C 5.0* . . . 199.
9957 ⑦ *THINK Reference 1.0* . . . 64.
- ★ **Teknosys**
5203 ⑦ *HELPI! 1.0.1* . . . 89.
- ★ **TGS Systems ... 60 day MBG**
6667 ⑦ *Prograph 2.5* . . . 309.
- ★ **Thought I Could ... 30 day MBG**
4843 ⑦ *Wallpaper 1.0.1* . . . 37.
- ★ **Utilitron, Inc. ... 30 day MBG**
1340 ⑦ *TrashMaster 1.0* . . . 39.
- ★ **Visionary Software ... 30 day MBG**
3888 ⑦ *Synchronicity 3.0* . . . 35.
3887 ⑦ *First Things First 2.0* . . . 41.



★ **ALSoft ... 30 day MBG**
9807 ⑦ *DiskExpress II 2.11*—The world's safest, most powerful disk optimizer that gives you all the speed you need. Only DiskExpress II intelligently monitors daily activity for personalized hard disk optimization. . . . \$49.

LEARN & PLAY FOREIGN LANGUAGES, TRAINING, GAMES

- ★ **Accolade**
1423 *Hard Ball II* . . . 31.
8220 ⑦ *Jack Nicklaus Golf* . . . 34.
- ★ **Aldus ... 30 day MBG**
3503 ⑦ *Dark Castle 1.1* . . . 34.
3502 ⑦ *Beyond Dark Castle 1.0* . . . 34.
- ★ **Baseline Publishing ... 30 day MBG**
7785 ⑦ *Talking Moose 4.0.2* . . . 22.
- ★ **Beacon Technology ... 30 day MBG**
4967 ⑦ *HyperBible (KJV)* or 4968 (NIV) . . ea. 125.
- ★ **Broderbund Software**
4314 ⑦ *Typel 1.0* . . . 18.
6516 ⑦ *The Playroom 2.0 (CP) (color)* . . . 29.
⑦ *Carmen Sandiego Series (CP)* . . . ea. 29.
5317 ⑦ *Spelunx and the Caves of Mr. Suedo* . . 29.
9804 ⑦ *RoboSport* or 8195 ⑦ *BannerMania* ea. 35.



★ **Visionary Software ... 30 day MBG**
3887 ⑦ *First Things First 2.0*—Simple & fast time management. Don't make a project out of time management! Keep it simple. Use MUG News, "Utility of the Year" Instantly avail. Lightning fast. No learning curve. Stay focused on priorities! \$41.

400U

MAC
MMC
of the Macintosh Association Inc.

MacConnection®

14 Mill Street, Marlow, NH 03456 603/446-7711 FAX 603/446-7791

It isn't a crime to

- 3559 7 SimAnt or 5318 7 Nigel's World... ea. \$35.
 3562 7 Patton Strikes Back... 35.
 8266 7 SimEarth 1.1... 40.
 4966 SimCity (CP)... 29. 5871 7 Supreme... 47.
★ Carina Software ... 30 day MBG
 5726 7 Voyager 1.2... 87.
★ Casady & Greene ... 30 day MBG
 4119 7 Crystal Quest with Critter Editor 2.2x... 29.
 3343 7 Aqua Blooper Piper or 3342 7 Glider... 29.
 4960 7 Fun Bundle (includes Crystal Quest w/CE, Sky Shadow & Mission Starlight)... 59.
★ Centron Software ... 30 day MBG
 2707 7 Puzzle Master... 26.
 8525 7 Casino Master (B&W) or 8524 (Color)... 45.
 3654 7 Puzzle Maker (Mar. '92)... 41.
★ Davidson & Associates ... 30 day MBG
 3922 7 Talking Spell It Plus... 29.
 6128 7 Math Blaster Mystery... 28.
 2574 7 New Math Blaster Plus... 34.
 8278 7 Alge-Blaster Plus... 34.
 3923 7 Personal Trainer SAT... 34.
★ Deadly Games ... 30 day MBG
 2811 7 Bomber or 3460 7 Battle of Britain II... ea. 31.
EARTHQUEST
 3118 7 EARTHQUEST Ecology 1.0... 34.
 8050 7 EARTHQUEST 2.0... 34.



- ★ Davidson & Associates ... 30 day MBG**
 Both of these educational programs offer exciting and challenging activities that make learning math and spelling fun for ages 6-12.
 2574 7 New Math Blaster Plus... \$34.
 3922 7 Talking Spell It Plus... 29.

- Electronic Arts**
 1303 7 Loom 1.0... 29.
 8194 Armor Alley 1.1... 32.
 1907 7 PGA Golf or 2963 7 Starlight II 1.0... ea. 39.
 3385 7 Secret of the Silver Blades... 39.
 8643 7 Harpoon 39. 2962 7 Challenger Pak... 59.
FTL/Software Heaven
 1555 OIDS 1.2... 24.
★ Great Wave ... 30 day MBG
 2276 7 Kid's Time 1.3 or 5642 7 Kid's Math 1.1... 25.
 1517 7 ReadingMaze... 25. 1513 7 (Color)... 35.
 4334 7 NumberMaze... 25. 8527 7 (Color)... 35.
 8044 7 NM Decimals & Fractions (Color)... 35.
★ HyperGlot Software ... 30 day MBG
 7 Word Torture 4.0-Beginner to Advanced (Span., Fren., Germ., Ital. & Rus.)... ea. 34.
 7 Pronunciation Tutor - Beginner (Span., Fren.)... ea. 35. (Germ., Chin.)... 38.
 7 Verb Tutor - Intermediate (Spanish, French, German)... ea. 38.
 7 Tense Tutor 2.0 (Spanish, French, German, Italian)... ea. 38.
 7 Survival Manual (Span., Fren., Germ., Ital., Chin. & Rus.)... ea. 38.
★ Inline Design ... 30 day MBG
 1562 73 in Three or 1944 8524 Swamp Gas... 31.
 8809 7 Tesserae... 31. 3414 7 Mutant Beach... 43.
 7622 7 Darwin's Dilemma 2.0 (Mar. '92)... 31.



After Hours Software

1352 7 TouchBASE 2.0—Multi-user database designed to keep track of personal and business contacts. It's a handy desk accessory that can print envelopes, labels, address books, fax cover sheets, reports and much more... \$79.

- Interplay Productions**
 1894 7 BattleChess (3D animation)... 29.
 3520 7 Dvorak on Typing (Apr. '92)... 29.
 1893 7 CheckMate (infinite play levels)... 31.
 3534 7 Castles 1.0 (May '92)... 34.
★ Learning Company ... 30 day MBG
 2670 7 Reader Rabbit 3.0 (CP) (ages 4-7)... 34.
 3272 7 Outnumbered 1.0... 34.
 3687 7 Midnight Rescue... 34.
 3281 7 The Writing Center 1.0... 51.
★ Leister Productions ... 30 day MBG
 7126 7 Reunion 3.0... 115.
Mallard Software
 7 Scenery Disks 1-4 Flight Simulator... ea. 25.
★ MECC ... 30 day MBG
 3963 7 Oregon Trail 1.0... 28.
 3960 7 Number Munchers 1.2... 28.
 3959 7 Word Munchers 1.2... 28.
 4095 7 Super Munchers 1.0... 28.
★ MicroMaps ... 30 day MBG
 2784 7 KidMaps... 16.
★ Microsoft ... 30 day MBG
 2868 7 Flight Simulator 4.0 (CP)... 42.
★ Mysterium Tremendum ... 30 day MBG
 5841 7 Moriarty's Revenge 1.03... 32.
★ Nordic Software ... 30 day MBG
 8258 7 Turbo Math Facts 2.0... 24.
 8260 7 Word Quest 2.1... 30.



- ★ Learning Company ... 30 day MBG**
 3687 7 Midnight Rescue!—Build deductive thinking & reading comprehensive skills as you outwit the Master of Mischief. Arcade-action game. \$34.
 3272 7 Outnumbered 1.0... 34.
 3281 7 The Writing Center 1.0... 51.

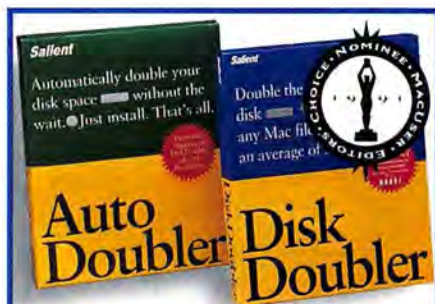
- 8257 7 PreSchool Pack - Color 1.0... \$34.
 2716 7 Word Search Deluxe 1.04... 34.
PC Globe, Inc.
 3608 Mac USA... 35.
★ Penton Overseas ... 30 day MBG
 7 VocabuLearn/ce Levels I & II (Span., Fren., Germ., Ital., Rus., Japan., & Heb.)... ea. 35.
 7 VocabuLearn/ce Level III (Span., Fren., Germ., Ital., Rus., & Japan.)... ea. 35.
 7 PICTURE-IT! (Spanish, French, German, & Italian)... ea. 40.
★ Personal Training Sys. ... 60 day MBG
 Special—Buy an entire PTS series and pay only \$39 for each module in that series.
 7 Basic Macintosh (modules 1-4)... ea. 59.
 7 Converting 6.0 to 7.0 (modules 1-2)... ea. 59.
 7 Excel 2.2, 3.0 (modules 1-9)... ea. 59.
 7 FileMaker Pro (modules 1-5)... ea. 59.
 7 FreeHand 3.0 (modules 1-5)... ea. 59.
 7 HyperCard 1.0, 2.0 (modules 1-4)... ea. 59.
 7 PageMaker 4.0 (modules 1-6)... ea. 59.
 7 Persuasion 2.0 (modules 1-4)... ea. 59.
 7 QuarkXPress 3.0 (modules 1-4)... ea. 59.
 7 System 7 (new users) (modules 1-3)... ea. 59.
 7 Word 4.0 (modules 1-4)... ea. 59.
 7 Works 2.0 (modules 1-4)... ea. 59.



- ★ Personal Training Sys. ... 60 day MBG**
 7 Learn Mac software easier. Audio-based tutorials are hands-on & self-paced. Various levels for Excel, Word, Works, PageMaker, Quark, FreeHand, System 7, Mac, etc... ea. \$59.
 Special—Buy entire set, get each module for only \$39.

- Sierra On-Line**
 9733 Hoyle's Book of Games II... 20.
 2412 Rise of the Dragon... 34.
 7367 Space Quest III... 34. 2522 Space Quest IV... 39.
 3545 EcoQuest... 35.
 2523 7 King's Quest V... 39.
 3549 Police Quest III... 39.
 3552 Leisure Suit Larry V... 39.
Sir-Tech Software
 8229 7 Bone of Cosmic Forge... 35.
★ SoftStream ... 30 day MBG
 3501 7 Classic Trilogy (Cribbage, Whist, Hearts) 50.
 3472 7 Family Cards (Solitaire, Rummy, War)... 50.
 4489 7 Galactic Frontiers... 38.
Software Toolworks
 4619 7 Mavis Beacon Typing 1.3 (CP)... 32.
 1908 7 World Atlas 1.0... 52.
★ Spectrum Holobyte ... 30 day MBG
 8180 7 Faces 1.0... 14.
 3464 7 Tetris 1.3 or 6112 7 Welltris 1.1... ea. 22.
 3017 7 Wordtris 1.0... 27.
 3459 7 Falcon 2.2.1 or 8181 7 Vette 1.0... ea. 33.
★ Spinnaker ... 30 day MBG
 2328 Sargon IV 1.03 (CP) (chess)... 28.
★ Strategic Studies ... 30 day MBG
 8085 7 Panzer Battles 1.3.2... 26.
 2685 7 American Civil War 1.0... 29.
 3267 7 Warlords (empires at war)... 34.

take your sweet time,



★ **Salient Software ... 30 day MBG**
 4838 **AutoDoubler 1.0**—New! Automatically double the space on your drive \$45.
 7404 **DiskDoubler 3.7**—Award winner. Compress files for telecommunication, backups, or transfer to floppies. Can use w/AutoDoubler 45.

StudyWare

ACT, GMAT, GRE, or SAT Prep. ea. 29.

Terrace Software

9970 **Mum's The Word Plus 1.01 (color)** 107.

★ Toyogo ... 30 day MBG

7836 **NEMESIS Go Junior 5.0** 19.

7624 **NEMESIS Go Master 5.0** 39.

7623 **NEMESIS Go Master Deluxe 5.0** 99.

★ Voyager ... 30 day MBG

2836 **Hitch Hiker's Guide to the Galaxy** 15.

2820 **Jurassic Park** 15.

2809 **The Annotated Alice** 15.

★ XOR ... 30 day MBG

6040 **MacGolf Classic 1.1** 52.

VIDEO & SOUND

MONITORS, MUSIC, MULTIMEDIA

★ Ars Nova ... 30 day MBG

1215 **Practica Musica 2.3** 66.



★ Highlighted Data ... 30 day MBG

7771 **Webster's Ninth New Collegiate Dictionary**—The complete print version on CD-ROM. More than 160,000 entries and illustrations. Sound feature can pronounce every word on the disk. \$159.

Coda Music Systems

8188 **MusicProse 189.5604** **Finale 2.6.1** \$549.

★ MacroMind•Paracomp ... 30 day MBG

2199 **MacRecorder Sound System** 174.

6159 **MacroMind Accelerator 3.0** 135.

5087 **MacroMind Director 3.0** 689.

2246 **MacroMind Three-D 1.0** 1025.

Mass Microsystems

2592 **QuickImage 24** 249.

Rival Monochrome Systems ea. 1199.

★ Nutmeg Systems ... 30 day MBG

19" for SE, SE/30, II, IIsi ea. 995.

19" for GrayScale SE/30, II, IIsi ea. 1295.

20" Color System: SE/30, II, IIsi ea. 2595.

Passport Designs

3117 **Master Tracks PRO 5 5.0** 339.

8250 **Encore 2.51** 399.

PCTV

2244 **System 7 Video** . 9. 2245 w/Lon's Book . 25.

RasterOps

9784 **RasterOps 24SX** . 649. 8944 24STV . 1249.

Software Toolworks

5201 **The Miracle (piano teacher) (Mar. '92)** call

★ Sound Source ... 30 day MBG

3547 **Star Trek: The Logical Collection** 29.

3607 **Star Trek: The Final Frontier** 29.

4920 **Star Trek: The Bundle (I gotta have both!)** 49.

★ SuperMac Technology ... 30 day MBG

4134 **19" Gray-Scale/Mono Display** 999.

1805 **19" SuperMatch Color Display** 1799.

1877 **Spectrum/8LC or 2026 S/8si** ea. 536.

1844 **Spectrum/8 Series III** 536.

1851 **Spectrum/24 Series III** 1525.

2330 **Spectrum/8-24 PDQ or 2231 PDQsi** 899.

4122 **VideoSpigot LC or 4114 IIsi** ea. 349.

4164 **VideoSpigot (for NuBus)** 399.

★ Voyager ... 30 day MBG

3921 **Mozart Dissonant Quartet CD** 39.

3924 **Shubert: "The Trout" Quintet CD** 39.

9322 **Voyager Videostack CD 2.2** 65.

CD-ROM

Adobe Systems

8794 **Adobe Type On Call CD/ATM** 47.

Broderbund

3730 **Just Grandma and Me (CD-ROM)** 34.

CD Technology

2321 **CD-ROM Caddy** . 11. 2533 (5 Pack) . 49.

8057 **Porta Drive CD-ROM** 599.

4140 **Multimedia HANDisc** 75.

★ Cyan ... 30 day MBG

2717 **Cosmic Osmo 1.1 (CD-ROM)** 37.

★ Discovery Systems ... 60 day MBG

9967 **Nautilus (subscription, CD-ROM)** 20.

9965 **Sherlock Holmes (CD-ROM)** 26.

9966 **Shakespeare on Disc (CD-ROM)** 26.

9968 **Birds of North America (CD-ROM)** 32.

1874 **Mammals of No. America (CD-ROM)** 32.

3683 **BackPac Set 1 or 3679 Set 2** ea. 45.

Dubl-Click Software

9944 **Wet Set CD** 218.

★ Highlighted Data ... 30 day MBG

7771 **Webster's Dictionary (CD-ROM)** 159.

★ HyperGlot ... 30 day MBG

7473 **Learn To Speak French (CD-ROM)** 62.

7829 **Learn To Speak Spanish (CD-ROM)** 62.

★ ICOM Simulations ... 30 day MBG

3717 **Sherlock Holmes Consulting Detective** 39.

NEC

6636 **Image Gallery (2800 line art)** 246.

9441 **CDR-36M CD-ROM Portable Drive** 399.



★ Lotus Development ... 60 day MBG

3606 **1-2-3 for the Mac**—Takes full advantage of the Mac. Directly manipulate & format all data, text, & graphics. Offers true 3D worksheets & Excel & 1-2-3 file compatibility \$329.
 3604 **1-2-3 Competitive Upgrade** 95.

2595 **General Reference CD-ROM Bundle**

(includes CDR36, kit & 7 titles) 529.

5161 **CDR-73M CD-ROM Drive** 599.

Software Toolworks

3915 **Grolier Encyclopedia (CD-ROM)** 249.

4397 **Time Table History (CD-ROM)** 57.

★ Voyager ... 30 day MBG

3918 **Baseball's Greatest Hits CD** 39.

3917 **A Silly, Noisy House CD** 39.

3919 **AmandaStories CD** 39.

COMMUNICATIONS

MODEMS, MAIL, NETWORKS

★ Abaton ... 30 day MBG

6266 **InterFax 24/96 Modem** 289.

2724 **InterFax 24/96 with InterShare** 339.

★ Applied Engineering ... 30 day MBG

8362 **QuadraLink (with AE Shadow)** 205.



★ Discovery Systems ... 60 day MBG

Nautilus Subscription Kit includes music, games and more. Sample Nautilus with BackPac 1: six CD-ROMs published 1/91-6/91.

3683 **BackPac Set 1** \$45.

9967 **Nautilus (subscription, CD-ROM)** 20.

400U

MMC
Member of the Mac Marketing Connection

MacConnection®

© Copyright 1992 PC Connection, Inc. MacConnection is a division and registered trademark of PC Connection, Inc., Marlow, NH. All other trademarks remain the property of their respective companies.

★'d items have Money-



★ **Berkeley Systems ... 30 day MBG**
 2198 ⑦ *More After Dark (M.A.D.)—Honorable Mention—1991 MacUser Editors' Choice Award for Best Desktop Diversion. 25 new displays.* \$23.
 5737 ⑦ *After Dark 2.0V—Stops screen burn-in.* 28.
 2196 ⑦ *After Dark & M.A.D. Bundle.* 40.

★ **Argosy Software ... 30 day MBG**
 7872 ⑦ Software Bridge/Mac 2.0.1. 99.
 2447 ⑦ RunPC/Remote 139. 2448 ⑦ Network 279.

★ **CE Software ... 60 day MBG**
 8066 ⑦ QuickMail (5 user) 249. 8067 (10) 375.
 1589 ⑦ QuickMail (50) 1549. 3489 (100) 2899.

★ **CompuServe ... 60 day MBG**
 1676 ⑦ Macintosh Membership Kit 1.6. 25.
 1673 ⑦ CompuServe Navigator 3.04 49.
 1674 ⑦ Membership Kit/Navigator Bundle 72.

★ **DataViz ... 60 day MBG**
 1823 ⑦ MacLink Plus/PC 6.0 129.
 4842 ⑦ MacLink Plus/Translators 6.0 109.

★ **Dayna ... 60 day MBG**
 DaynaPORT E: (10BASE-T) ea. 164.
 DaynaPORT E: SE, SE/30, II, IISI, LC 183.
 8719 EtherPrint. 345. 9888 (10BASE-T) 345.

3665 DaynaSTAR MiniHub 309.
 3666 DaynaPORT SCSI/Link 279.
 3667 DaynaPORT SCSI/Link (10BASE-T) 279.
 3664 NetMouter 57.

★ **Dove Computer**
 6758 ⑦ DoveFax 2.0 199. 3352 NuBus 229.
 9534 ⑦ DoveFax Plus 265. 4111 NuBus 299.
 4110 ⑦ DoveFax LAN-5 329. 4109 NuBus-5 365.

★ **Farallon Computing ... 30 day MBG**
 Full line available. Partial listing.

9805 ⑦ Timbuktu 4.0.2 129.
 4866 ⑦ Timbuktu/Remote 3.0 129.
 6273 PhoneNET StarConnector 10-Pack 129.

4869 PhoneNET Connector 10-Pk (DIN8) 198.
 2206 PhoneNET StarController 307 899.
 4802 PhoneNET StarController 357 1025.
 4814 PhoneNET StarController 377 1299.

9961 PhoneNET Card PC 209.
 PhoneNET Ethernet Card (SE/30, II, si) ea. 173.
 PhoneNET Ethernet Card (10 pack) ea. 1659.

★ **Freesoft ... 60 day MBG**
 6115 ⑦ White Knight 11 85.

★ **Global Village ... 30 day MBG**
 8946 ⑦ TelePort A300 1.06 129.
 8945 ⑦ TelePort/FAX 1.06 169.

5327 ⑦ TelePort/Full FAX 2.0 219.
 5321 ⑦ PowerPort/V.32 2.0 489.

★ **Hayes**
 2300 ⑦ Smartcom II for the Mac 3.3 84.
 1345 OPTIMA 24 Modem 155.

3522 OPTIMA 96 Modem 389.
 7391 ULTRA 96 Modem 669.
 5024 ULTRA 144 Modem 799.

★ **IBS ... 30 day MBG**
 8581 DataClub Classic (3) 265. 8580 (10) 539.
 1495 DataClub Elite 939.

Insignia Solutions
 7557 ⑦ Access PC 1.1 60.
 9726 ⑦ Entry Level SoftPC 2.5 125.
 4089 ⑦ Universal SoftPC 2.5 195.
 3229 ⑦ SoftAT 2.5 299.
 3441 ⑦ SoftNode 1.0 105. 3454 (10 Pak) 699.

★ **Microcom ... 30 day MBG**
 7459 ⑦ CarbonCopy Mac 2.0 (single) 59.
 1556 ⑦ CarbonCopy Mac 2.0 (unlimited) 179.
 8027 MacModem V.32 w/CarbonCopy Mac 689.

★ **Microsoft ... 30 day MBG**
 9444 ⑦ Microsoft Mail 3.0 (1-5 user) 269.

★ **Orange Micro ... 30 day MBG**
 2392 ⑦ Orange386 (20 MHz) 1799.

★ **Practical Peripherals ... 30 day MBG**
 8994 2400 V.42 bis Modem 125.
 7934 PM9600SA Modem 1.26 289.
 9849 ⑦ SmartPack 9600 (with Smartcom II) 349.

★ **Prometheus ... 30 day MBG**
 2590 ⑦ ProModem 2400 Mini Plus 129.
 3832 ⑦ ProModem Remote Plus 225.
 3232 ⑦ ProModem 24/96 S/R Minifax Plus 269.

3831 ⑦ ProModem 9600M-EC 375.
 8990 ⑦ ProModem Ultima Home Office 489.

★ **PSI Integration, Inc. ... 30 day MBG**
 5320 ⑦ PowerModem (for PowerBook) 215.
 3143 ⑦ COMstation One 249. 3142 ⑦ Two 299.
 5340 ⑦ COMstation Four 439.
 5339 ⑦ TravelCOM (pocket modem) 499.



★ **TIMESLIPS ... 30 day MBG**
 2986 ⑦ *Timeslips III 2.1—New version!*
 Fast, easy, accurate time and billing for
 service professionals \$194.
 8939 ⑦ *Accounting Link 1.0B—Now links with
 general ledger accounting programs* 52.

★ **Shiva ... 30 day MBG**
 3444 ⑦ NetSerial 1.35 275.
 4347 NetBridge or 4942 ⑦ TeleBridge 409.
 NetModem/E (thick, thin, 10BASE-T) ea. 1679.

★ **Sitka/TOPS**
 4188 Teleconnector (DIN8) 23. 2230 (10) 189.
 6264 ⑦ TOPS Network 3.1 187.
 2419 ⑦ TOPS Network 3.1 (3 pack) 249.

★ **Software Ventures ... 30 day MBG**
 3455 ⑦ MicroPhone II 4.0 special 179.

★ **Synergy ... 30 day MBG**
 6618 ⑦ VersaTerm 4.6 90. 6619 ⑦ PRO 3.6 177.

★ **TechWorks ... 30 day MBG**
 1582 ⑦ GraceLAN 285.
 1584 ⑦ GraceLAN Corporate 689.

1781 ⑦ GraceLAN Update Mgr. Single Zone 169.
 1782 ⑦ GraceLAN Update Mgr. Multiple Zone 285.
 1767 ⑦ GraceLAN Asset Manager 499.

1763 ⑦ Hubworks-8 289.
 Ethernet Cards. call

★ **White Pine Software ... 30 day MBG**
 3535 ⑦ Mac 240 139. 3541 ⑦ Mac 241 199.
 2404 ⑦ Mac 320 99. 2403 ⑦ Mac 330 169.
 2400 ⑦ Mac 340 239. 3544 ⑦ Exodus 3.0 199.



★ **Zoom Telephonics ... 30 day MBG**
 3553 ⑦ *Fax/Modem VFX V.32bis—V.32bis and
 Send/Receive Fax at a breakthrough price! 50
 percent faster than 9600 bps with 14,400 bps
 uncompressed data and fax* \$299.

★ **Zoom Telephonics ... 30 day MBG**
 1168 ⑦ MX2400R Modem (w/QuickLink II) 69.
 1176 ⑦ MX2400S Modem (with SendFax 9600) 79.
 2310 ⑦ FX9624 Send/receive Fax/Modem 119.
 3576 ⑦ FX9624V Send/receive V.42 Fax/Modem 145.
 1179 ⑦ V.42bis Modem (with MacPack) 125.
 2311 ⑦ V.32 Turbo Modem (with MacPack) 339.
 3553 ⑦ Fax/Modem VFX V.32bis 299.

INPUT/OUTPUT KEYBOARDS, MICE, TRACKBALLS, PRINTERS & SCANNERS

★ **Abaton ... 30 day MBG**
 7432 ⑦ Scan 300/GS (reqs. Scan Kit) 829.
 2742 Scan 300/Color (reqs. installation kit) 989.
 1496 Inst. Kit for 300/Color with Photoshop 479.
 1537 LaserScript LX 1729.

★ **Advanced Gravis ... 30 day MBG**
 9963 ⑦ Gravis Mouse Stick 59.
 9964 ⑦ Gravis Super Mouse 79.

★ **American Power**
 5895 UPS 110SE 209. 6686 UPS 370ci 339.
 3447 SurgeArrest Plus 39.

★ **Appoint ... 30 day MBG**
 2760 Thumbelina Mac (mini 3 button mouse) 65.
 2769 MousePen Pro Mac 65.



★ **White Pine Software ... 30 day MBG**
 2400 ⑦ *Mac 340—Terminal emulation for text,
 graphics & color. Links to VAX or UNIX hosts.
 Supports AppleTalk, LocalTalk, Ethernet, DECnet,
 LAT, TCP/IP, Serial, Modem or Gateway* \$239.
 2404 ⑦ *Mac 320* 99. 2403 ⑦ *Mac 330* 169.

There was a time when we all worked QMS-PS 1700 individually. We each had a computer and we each had a printer. Today, many of us work in groups. We choose our computers for their ability to perform well within networks. Shouldn't the same criterion now apply to our printers?

HOW TO SPOT THE TRUE NETWORK PRINTER AMONG A HOST OF IMITATORS.

1-800-523-2696 EXT 214

Unlike most printers that merely claim to be appropriate for network applications, the QMS-PS® 1700 was conceived and built to be the most efficient printer there is in a network environment. In terms of cost, as well as performance.

Proprietary software that resides within a 25 MHz RISC controller is what sets this printer apart from all others.

It handles PostScript® documents up to six times faster than the more common 68020 microprocessor. And it's the heart of an architecture you'll find in printers that come from QMS and only QMS. We call it Crown.

Consider whether its benefits would help your group work even more efficiently.

The QMS-PS 1700 recognizes incoming data and selects the right printer language without troublesome software reconfigurations.

The QMS-PS 1700 connects to Ethernet® networks configured as DECnet®, TCP/IP, NetWare®, or EtherTalk™ protocols or to Token Ring configured to support the NetWare protocol. And it can be shared between multiple computers

The Rom card gives control over the



the LAN administrator printer's settings.



with different operating systems.

Its input buffers spool jobs so that host applications aren't

hung up waiting for files to print.

The input capacity of the QMS-PS 1700 is 1,000 sheets. Output is 500. And there's an optional duplexer for two-sided work.

What's more, if a job is interrupted for any reason, this printer has the intelligence to reprint any needed pages and then continue.

Its context switching capability preserves "states,"

such as fonts and macros, when switching

between emulations so you don't waste time downloading them each time.

Font or emulation storage can be expanded with optional internal and external SCSI hard drives.

So the QMS-PS 1700 is much more than a laser printer. In fact, it's exactly what most work groups need but haven't been able to find. Until now. The QMS-PS 1700 is The Network Printer.

	QMS-PS 1700	HP IIIiSi
Both 300 and 600 DPI resolution	✓	
Concurrent interfacing	✓	
Spooling	✓	
Context switching	✓	
Security system	✓	

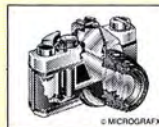
You could compare the QMS-PS 1700 to the HP IIIiSi, but there really is no comparison.



Multi-res lets you switch between the exceptional output of 600 dpi and the speedier 300 dpi resolution.

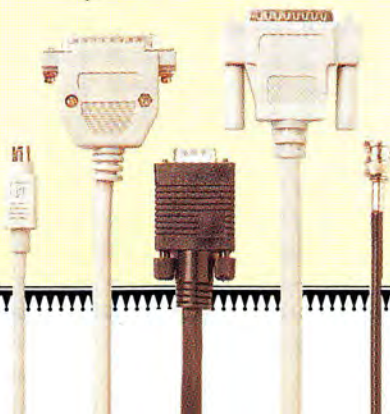
Crown architecture. Proprietary hardware and software design that make our printers The Network Printers.

The QMS-PS 1700 printed this file in 62 seconds.



We're almost 3 times as fast.

Simultaneous Interface Operation, or SIO, lets the printer work over all its interfaces at once.



Back Guarantees.

Bravo Communications

- 9813 2-pos. Mini Din 8 protected data switch . \$95.
9817 4-pos. Mini Din 8 protected data switch . 119.

Caere

- 8124 ⑦ Typist Plus Graphics 475.
4476 ⑦ OmniPage 3.0 475.
4930 ⑦ OmniPage Professional 2.0 669.

CoStar

- 1418 AddressWriter 498.
⑦ Stingray ADB (platinum or black) . . ea. 89.

★ Curtis Manufacturing ... 30 day MBG

- 8046 MVP Mouse (MVP-1) 89.

★ Datadesk ... 30 day MBG

- 9830 ⑦ MAC101E . 129. 2384 w/QuickKeys . 149.
6901 Switchboard (modular keyboard) . 159.

★ Everex ... 30 day MBG

- 1144 ⑦ Silhouette Trackball 1.0 (ADB Macs) . . 78.

★ GDT Software ... 30 day MBG

- 3429 ⑦ BetterWriters 1.0 (software drivers) . . 39.
2499 ⑦ PowerPrint 99.

Hewlett-Packard

- 6514 HP B&W DeskWriter (w/cartridge) . . . 479.
2964 HP Color DeskWriter C (w/color cart.) . 849.
3596 HP ScanJet IIC (color) 1599.
6754 HP LaserJet III 1599.

★ Kensington ... 30 day MBG

- 2547 ⑦ Turbo Mouse 3.0 ADB 107.

Koala

- 2593 ⑦ MacVision Gray-Scale Digitizer 3.5 . . 259.
2879 ⑦ MacVision Color Digitizer 1.1 . . . 499.



Kraft Systems

Complete with footpedal, the ADB Trackball lets you compute with ease. Feel the difference with the KM30—more than a joystick.

- 7519 KM30 Joystick \$42.
6099 Trackball (with footpedal) 39.

Kraft Systems

- 6099 Trackball (with footpedal) 39.
7519 KM30 Trackball 42.

★ Logitech ... 30 day MBG

- 1671 ⑦ MouseMan . 77. 1672 ⑦ TrackMan . 89.
5082 ⑦ ScanMan Model 32 G-Scale Scanner . 299.

★ MicroSpeed ... 30 day MBG

- 2807 ⑦ MicroTRAC (for SE & II family) . . . 75.
6621 ⑦ MacTRAC ADB 2.0 (SE & II family) . . 75.

★ Microtek ... 30 day MBG

- 1981 ⑦ MS-II OCR Scanner 849.
1978 ⑦ Scanmaker 600GS 849.
1985 ⑦ Scanmaker 600ZS 1449.
4505 ⑦ TrueLaser (with toner) 1399.

Monster Design Group

- 1486 MacSpeakers (two, stereo) 169.

★ Mouse Systems ... 30 day MBG

- 7520 ⑦ Little Mouse or 8001 Little Mouse Plus . 74.
3005 ⑦ A³ Trackball (ADB) 79.

★ Orange Micro ... 30 day MBG

- 3036 ⑦ Grappler 2.0 92. 3692 ⑦ IISp . 115.

★ Sophisticated Circuits ... 30 day MBG

- 8009 ⑦ PowerKey 2.01 76.
8008 ⑦ PowerKey Remote 32.

Includes one black toner cartridge

Hewlett-Packard
6754 HP LaserJet III—Exclusive Resolution Enhancement technology with 300 dpi sets a new standard. Prints up to 8 pages per minute as well as holding up to 5 MB of memory. Scalable typefaces and more built in . . . \$1599.

Thunderware

- 4994 ⑦ LightningScan 400 359.
3107 ⑦ LightningScan Pro 256 499.

UPGRADES & DRIVES MEMORY, ACCELERATORS

SIMMs ... with free video & manual

- 8316 1 MB SIMMs (80ns, set of 2) 75.
9437 2 MB SIMMs for IIsi or II LC 75.
PowerBook memory call

★ Applied Engineering ... 30 day MBG

- 2532 QuickSilver Accelerator for the IIsi . . . 299.
1971 FastMath LC 139.
4850 FastMath Classic II 169.
8361 ⑦ 1.44 MB High Density Drive 229.
5290 ⑦ Plus Drive (FDHD for Plus & SE) . . . 309.
3319 TransWarp SE (25 MHz) 799.
3317 TransWarp SE (40 MHz) 1479.
4147 TransWarp LC (33 MHz) 999.
4903 TransWarp LC (40 MHz) 1199.
2905 Floppy Drive to Mac II Cable 15.

Computer Care

- BookView Imperial (memory and video card for Apple's PowerBooks) call
BookRAM 2S, 4S, 6S, DRAM 4 call

★ Dayna ... 60 day MBG

- 8722 DaynaFile II 1.2 5¼" Drive 429.



Bravo Communications

Protect your expensive laser printer or any other Mac equipment from damaging in-line spikes and surges. Your equipment deserves protection.

9813 2-pos. Mini Din 8 protected data switch . \$95.
9817 4-pos. Mini Din 8 protected data switch . 119.

★ DayStar Digital ... 30 day MBG

Does not include optional math chip.

- 8949 LT200 Connection (PC) 175. 8950 (MC) \$279.
3584 DualPort IIsi with 20 MHz 68882 . . . 165.
8556 ⑦ FastCache for Mac IIsi 265.
3401 ⑦ FastCache IIsi 299. 3389 IIsi w/FPU 369.
1613 ⑦ FastCache 040 (for Quadra) 349.
PowerCache for SE/30, II, IIs, IIsx, IIsi, LC 40 MHz 899. 50 MHz . . . 1399.
RAM PowerCard (various memory config.) . call
Envivio
1819 Notebook Display Adaptor (1 MB) . . . 549.
1812 (2 MB) 699. 1842 (4 MB) . . . 1099.
1848 Notebook Display Adaptor 030 (1 MB) . 629.
1837 (2 MB) 939. 1835 (4 MB) . . . 1249.

Dove Computer

- Racer 030 Plus, SE, or SE/30 ea. 399.
9789 Racer 030 for Mac II 739.

★ FWB, Inc. ... 30 day MBG

- 2320 HammerDisk44 (removable) 739.
1802 HammerDisk88 (removable) 999.
2331 PocketHammer 50 569.
2329 PH 100 769. 2314 PH 200 . 1199.
1801 Hammer300 1899. 1803 PH 425 . 2199.
2341 Hammer Internal 50is 389.
2333 100is 599. 2334 200is . . . 999.
1795 300is 1699. 1794 425is . . 1999.



★ DayStar Digital ... 30 day MBG

PowerCache—Award-winning PowerCache accelerator gives the best combination of blazing-fast speeds and cost-effective prices. Guaranteed 100% compatible. Adapters allow compat. w/7 different Macs . . . see line listing

IOMEGA

- 2224 90 MB Transportable (reqs. kit) 799.
2467 Gold Std. Rem. Disk (90 MB, tri-pak) . 439.
7789 ⑦ Mac 1B Interface (w/Central Pt. Backup) . 39.
2466 ⑦ Mac 2B Interface (w/RetroSpect) . . 99.

Mass Microsystems

- 2605 DataPak 45 649. 2599 DataPak 88 . 849.
2973 Diamond 120 MB Hard Drive 639.
2972 Diamond 210 MB Hard Drive 1049.
2969 Diamond 320 MB Hard Drive 1699.
2952 Diamond 510 MB Hard Drive 2149.
3677 2" Diamond 80 MB Portable Drive (Mar.) 689.
3678 2" Diamond 120 MB Portable Drive (Mar.) 569.
3663 2" Diamond 210 MB Portable Drive (Mar.) 979.
3662 2" Diamond 320 MB Portable Drive (Mar.) 1549.
3652 2" Diamond 510 MB Portable Drive (Mar.) 1999.
3657 HitchHiker Portable Drive (40 MB) (Mar.) 519.
3656 HitchHiker Portable Drive (80 MB) (Mar.) 689.

★ Micron ... 30 day MBG

- 7149 ⑦ Xceed IIsi-128K Cache Card 239.
2262 Xceed Color 30 Card (SE/30) 279.
2260 Xceed Gray-Scale 30 Adapter Card . . . 75.
3668 Xceed Macro Color 30 24-bit Video Card 489.
Peripheral Land, Inc. (PLI)
1866 Quick SCSI Card (requires cable) . . . 319.
8335 PLI TurboFloppy 1.4 295.
8327 PLI Infinity 40 Turbo (removable) . . . 625.

800/800-4444.



★ **Applied Engineering ... 30 day MBG**
5290 Plus Drive—100% FDHD compatible drive for the Plus and SE. The Plus Drive installs through the floppy connector and requires no SWIM chip upgrade **\$309.**

9752	PLI Infinity 88 Turbo	779.
2325	PLI Infinity Optical Drive	3199.
2864	PLI Infinity Floptical Drive (21 MB)	559.
2865	PLI Infinity Floptical Cartridge (21 MB)	35.
2865	PLI Infinity Floptical Cart. (21 MB), (10 pak)	299.
2644	Quantum 52 MB External	479.
8330	PLI 105 MB	619.
2327	PLI 2GB DAT Drive	1939.
★ PSI Integration, Inc. ... 30 day MBG		
3135	PSI MultiColor	99.
3137	Crunch-It! LC	113.
★ Sigma Designs		
1501	DoubleUp with DiskDoublers 3.7	179.
★ Total Systems ... 30 day MBG		
7817	16 MHz Mercury 030 (for Mac SE)	359.
7816	20 MHz Gemini 030	799.
	68882 Math Coprocessors	call

MEDIA

★ Fuji ... 60 day MBG		
2214	3 1/2" DS Disks (10) ... 9. 2242 (50)	32.
2215	3 1/2" HD Disks (10) ... 15. 2241 (50)	59.
4863	3 1/2" HD Disks (20) w/storage case	26.
2243	3 1/2" Color (10) DS	10.
2239	3 1/2" Color (10) HD	18.
	Fuji 1/4" Data Cartridges	call
5345	DG60M	16.



★ SyQuest ... 30 day MBG		
Cartridges for SyQuest removable drives.		
6592	44 MB Cartridge	\$69.
9728	44 MB Cartridge (10 Pack)	649.
3603	88 MB Cartridge	107.
3600	88 MB Cartridge (10 Pack)	999.

★ Sony ... 60 day MBG				
3297	3 1/2" DS Disks (10) ..	\$9. 6148 (30) ..	\$25.	
3298	3 1/2" HD Disks (10) ..	15. 6375 (30) ..	42.	
1603	DG60M	16. 2520 DG90M	22.	
	Sony 1/4" Data Cartridges	call		
★ SyQuest ... 60 day MBG				
6592	44 MB Cartridge	69. 9728 (10) ..	649.	
3603	88 MB Cartridge	107. 3600 (10) ..	999.	
★ 3M ... 60 day MBG				
3943	DC2000 40 MB Data Cartridge	17.		

ACCESSORIES

TONERS, CASES, DUST COVERS

★ Apple Computer		
9773	StyleWriter Ink Cartridge	22.
7748	Personal LaserWriter Toner Cartridge	87.
1115	LaserWriter II Toner Cartridge	105.
★ Avery ... 60 day MBG		
7050	Avery 5660 (1" x 2 5/8" Clear Adrs.-Laser) ..	32.
4811	Avery 5182 (8 1/2" x 11" Trans.-Laser) ..	22.
5392	Avery 5196 (3 1/2" Disk Labels-Laser) ..	29.
4807	Avery 5160 (1" x 2 5/8" Address-Laser) ..	24.
★ Basic Needs ... 60 day MBG		
	Full line of Dust Covers, etc.	call
★ Curtis Manufacturing ... 30 day MBG		
8973	Apple Security Kit (SL-2)	22.



★ SIMMs ... 2 year warranty		
8316	1 MB SIMMs (80 ns, set of 2)	\$75.
9437	2 MB SIMMs (for IIs or LC)	75.
7437	4 MB SIMMs (80 ns)	139.
7600	4 MB SIMMs (80 ns, set of 4)	549.
	PowerBook memory	call
4748	Mac Toolkit (Plus, SE, Classic)	8.

★ Ergotron, Inc		
	Mac Tilt (Classic, SE or SE/30)	ea. 68.
★ Goldstein & Blair ... 30 day MBG		
8374	The Macintosh Bible (with disks)	25.
★ I/O Design ... 30 day MBG		
	Full line of Dust Covers (teal green or navy) ..	call
3688	Ultimate StyleWriter Case	49.
8812	Ultimate Classic Carrying Case	64.
1941	Ultimate LC Carrying Case	95.
3371	Ultimate EX PowerBook Case	75.
3362	Ultimate SL PowerBook Case	64.
★ Kensington ... 30 day MBG		
	Full line available. Partial listing.	
4973	Power Tree 20	27.
2559	Apple Security Kit	33.
9303	Keyboard Shelf	39.
6763	Mac SE Anti-Glare Filter	52.
5064	Apple Color Monitor Polarizing Filter	63.
★ MacConnection ... 60 day MBG		
1505	Oak Disk Case (36) ... 21. 4623 (90) ..	32.
★ Moustrak ... 60 day MBG		
2694	Moustrak Pad (7"x9")	8.
2692	Moustrak Pad (9"x11")	9.
2693	Moustrak Pad Low Friction (9"x11")	10.
★ Targus ... 60 day MBG		
3617	Mac Classic/Plus/SE Case	59.



Hayes

1345 OPTIMA 24 Modem—An affordable high-speed V.42bis modem with the reliability and quality that made Hayes famous. Supports throughput up to 9600 bps. **\$155.**

1305	Universal Notebook (for PowerBooks) ...	69.
4015	Mac SE & Ext. Kybd. Carry Case	75.
★ T/Maker ... 30 day MBG		
5316	The PowerBundle Carry Case (only)	75.

OUR POLICY

- We accept VISA and MASTERCARD.
- No surcharge added for credit card orders.
- Your card is not charged until we ship.
- If we must ship a partial order, we never charge freight on the shipment(s) that complete the order (in the U.S.).
- No sales tax, except Ohio residents (please add applicable tax).
- All U.S. shipments insured; no additional charge.
- APO/FPO orders shipped First Class Mail.
- International orders U.S. \$250 minimum. Manufacturer support and upgrade eligibility may be limited outside the U.S.A.
- Upon receipt and approval, personal and company checks clear the same day for immediate shipment of your order.
- Corporate P.O.s accepted subject to credit approval.
- COD max. \$1000. Cash or certified check.
- 120 day limited warranty on all products. Defective software replaced immediately. Defective hardware repaired or replaced at our discretion. All items subject to availability. Prices and promotions subject to change without notice.
- Our order lines are open continuously from 8:00 a.m. Monday until noon Sunday Eastern Time. You can call our business offices at 603/446-7711 Monday through Friday 9:00 a.m. to 5:30 p.m. Eastern Time.

SHIPPING

Continental US: Barring events beyond our control, all credit card orders phoned in weekdays by 3:15 a.m. Eastern Time will ship Airborne Express for delivery the next business day. Which means same day delivery for orders placed between midnight and 3:15 a.m. Eastern Time. (Some orders may ship by UPS Ground for next day delivery). Saturday delivery available to many areas upon request. Some areas require an additional day delivery. The total freight charge on any order placed with MacConnection is only \$3.

Hawaii, Alaska, Canada, Puerto Rico and the U.S. Virgin Islands: Call 800/800-4444 for information on shipping and charges.

All other areas: Please call 603/446-7711 or FAX 603/446-7791 for information.



Here's our favorite scoop.

Have you noticed that sometimes things just don't work out? Great expectations turn into puzzled expressions. Unfortunately, when you buy a Mac product from most places, you're stuck with it. You open it, you own it—whether you like it or not. Maybe you can give it away. Or use it as a lawn ornament. But you can't return it for a refund.

If, however, you buy a product covered by our 30/60-day Money-Back Guarantee, you can send it back for any reason at all. Just call for an authorization and return it with all the original packaging. We'll send you a prompt refund or credit your card. We were the first Mac mail order company to offer real money-back guarantees. And it's still our favorite scoop of all.

1-800/800-4444
MacConnection®

MacConnection, 14 Mill Street, Marlow, NH 03456 603/446-7711 FAX 603/446-7791

©1992 PC Connection, Inc. MacConnection is a division and registered trademark of PC Connection, Inc., Marlow, NH.

DON'T LIKE IT? RETURN IT. MONEY-BACK GUARANTEES ON MOST PRODUCTS.

The number of returns allowed may be limited in some cases.

QUICK CLICKS

N NewLife Accelerator!

For those looking to improve sluggish Mac Classic performance, NewLife Computer has come up with a product that's less expensive and faster than Apple's Classic II Logic Board Upgrade kit.

At \$721, Apple's upgrade kit costs almost as much as the original Mac Classic itself. The NewLife Accelerator!, on the other hand, costs more than \$100 less than Apple's offering and provides almost twice the performance as well as a better mix of features.

The 68030-based NewLife Accelerator! clips to the Classic motherboard's 68000 processor, and a small power supply mounts onto the Classic's internal metal chassis. The accompanying software sports a single control panel that supports the board and provides a user-selectable SANE (Standard Apple Numeric Environment) patch that improves performance for mathematics-intensive operations.

The NewLife board is equipped with a single bank of four SIMM slots. Each slot can accommodate a 4-megabyte SIMM, so you can load your Classic with as much as 16 megabytes of RAM. Because the board uses a 68030 chip and a 32-bit data bus, its performance is on a par with that of a Mac SE/30. There is a catch, however. You must fill all four slots with SIMMs of the same size. You can use 80-nanosecond or faster 1- or 4-megabyte SIMMs.

The Accelerator! unit we tested came with an optional 68882 FPU (floating-point unit). The board is priced at \$599 with the FPU and costs \$529 without it. NewLife also provides a socket for a video port (\$266) that supports several monochrome monitors.

We performed our tests with the FPU installed and the SANE patch enabled. Using System 7 and version 1.05 of NewLife's software, we ran the same suite of benchmark tests used in "Shopping for the Right Mac" (March '92, page 128). Our tests showed the average performance of a Classic equipped with a NewLife Accelerator! to be nearly double that of the Classic II, almost four times that of the original Classic, and equivalent to that of the Mac SE/30.

We encountered only minor compat-

ibility problems with the Accelerator!. The sound output is distorted, but NewLife claims that it will fix the problem with a software upgrade by the time this review appears. Excel 3.0 didn't run under System 7.0.1, but it ran just fine under System 7.0. As a compatibility safeguard, you can disable the Accelerator! by holding down the interrupt key when booting or restarting the Classic. NewLife also says that Micron SIMMs are not compatible with the Accelerator!.

With its speedier performance and color support, Apple's Mac Classic II is in many respects what the original Classic should have been. But owners of the original Classic, don't despair. Both Apple and NewLife offer a solution that can enhance your Classic considerably. Neither Apple's Classic II Logic Board Upgrade kit nor the NewLife Accelerator! is without drawbacks, though. Apple's upgrade includes 32-bit-clean ROMs and can accommodate color but lacks an expansion port and FPU and supports only 10 megabytes of RAM. The Accelerator! relies on the Classic's ROMs, which aren't 32-bit-clean and don't support color, and it has its share of compatibility problems. However, with its faster speed, coupled with support for 16 megabytes of RAM and the inclusion of an expansion port for video cards, the Accelerator! can save you more than money over Apple's offering.

NewLife Computer Corp., 603 March Road, Kanata, Ontario K2K 2M5, Canada; (613) 592-5080. \$529; with FPU chip, \$599.

— Jeff Pittelkau



DayMaker is a personal scheduling and information-management program you'll love to hate. It's chock-full of almost all the powerful, useful features you want in a PIM. However, figuring out how the darn thing works may well drive you crazy. DayMaker is crammed with so many features that it demands a superbly crafted interface for quick and easy access to its power. Unfortunately for users, the program's interface is its Achilles' heel.

DayMaker's flexibility for customizing, which lets you configure it to fit your preferred PIM style, is as impressive as its list of features. The program lets you categorize new entries as calendar, note, or to-do items. You can also choose to set

alarms for items (with or without advance warning) as well as assign priority levels and any number of descriptive tags. To assist — or confuse, depending on your point of view — pop-up menus proliferate on-screen.

DayMaker lets you choose one of five modifiable views of your information: monthly, weekly, or daily for calendar items and single or list for to-do items. In the Daily and List views, the program displays information in columns. You can get a selective view of your columns by using the program's tags or priority levels. For example, you can opt to view all uncompleted tasks in the List view or to view only personal items in the Calendar view. To further customize DayMaker, you can create custom menu commands for any layout, view, or sort order you use repeatedly.

DayMaker can also serve as a simple address book and phone directory — it even dials for you. In addition, because it allows lengthy text entries, you can use it as a free-form database. It also lets you print data in calendar form or in a variety of other layouts, including predefined label templates.

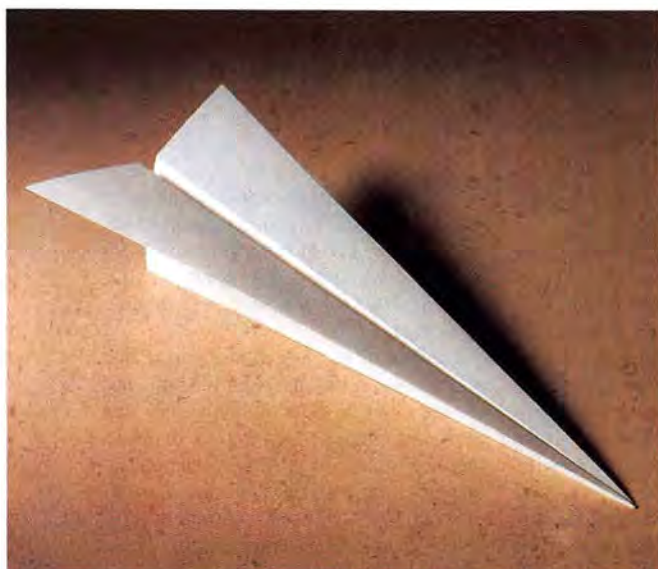
It takes more than an endless feature set to make a usable PIM. DayMaker's features ought to be more convenient to access and use. For example, the alarm function provides no direct way to change an item's listing to "done" or to delete an item after a reminder has appeared.

Another annoyance is that DayMaker can't automatically schedule recurring events. You also can't delete items when you're in the Single Item view. You must use another view, so frequent shifts between views are necessary. Moreover, once you've created a customized view or item, you can't modify it without deleting the original and creating an entirely new view with the same name.

Despite DayMaker's handicaps, Pastel Development deserves credit for the sheer amount of power it packs into a single package as well as for its flexibility. If you're looking for one program that has scheduling, alarms, and free-form text entry with tags and priority-level settings, DayMaker is a good choice. You may grumble about its clumsy interface, but it's the only program versatile enough to handle all those tasks.

Pastel Development Corp., 91 Franklin Street, New York, NY 10013; (212) 431-3421. Version 1.01. \$99.

— Ted Landau



Now there are two ways to make an 11" x 17" sheet of paper fly.

The new LZR 1560 from Dataproducts is a complete departure from ordinary laser printers. At 15 ppm it's not only faster than most laser printers, it can also deliver output up to 11" x 17". Which means it can print spreadsheets, illustrations—any two-page layout—in the time it normally takes to process a letter-size page.

This kind of performance is the result of combining two powerful innovations. Namely, a RISC-based controller, for quicker rendering of fonts and graphics, and PostScript® Level 2, an advanced printing

language that delivers PostScript's vast graphic capabilities faster than ever before.

Plus, while most laser printers

300 dpi can be done with a click of the mouse.

Imagine creating two-page desktop publishing layouts without cutting and pasting. Or finally getting your full production timeline on a single page that has *legible* 6-point type.

You'll still

have a desk to work on too, since the LZR 1560 is the smallest 11" x 17" printer available. And with one, two or three paper input tray models available, even your biggest jobs are handled easily.

So call 1-800-334-3174 for the name of your nearest Dataproducts dealer. And discover why the LZR 1560 is the only way to fly.

11" x 17" Laser Printer Market Snapshot

SPECIFICATIONS

Manufacturer/Model	Resolution (DPI)	Speed (PPM)/Processor	Page Description Language	List Price
Dataproducts LZR 1560	300x300 OR 400x400	15	Weitek 8200 RISC	\$5,695
QMS PS2210	300x300	20	Motorola 68020	\$9,995
LaserMaster 400XL	400x400	20	None	\$9,995
Varityper VT600W	600x600	7	Motorola 68020	\$16,995
DEC PrintServer 20	300x300	20	N/A	\$25,247
ATI LC6020	300x300	20	Motorola 68020	\$15,995
			Adobe PostScript Level 2 & PCL4	
			Adobe PostScript	
			Microsoft TrueImage	
			Adobe PostScript	
			Adobe PostScript	
			ATI LaserDrive & PostScript	

give you only "enhanced" 300 dpi, ours gives you *true* 400 dpi. So you get outrageously crisp and clean text and graphics. And switching back to



400 dpi offers greater halftone range and sharper images than standard 300 dpi.

controller, for quicker rendering of fonts and graphics, and PostScript® Level 2, an advanced printing

Dataproducts

The high performance printer people.™

© 1992 Dataproducts Corporation. Dataproducts and its associated logomark are registered trademarks, and its tagline and LZR Series are trademarks, of Dataproducts Corporation. All rights reserved. All other product and brand names are trademarks or registered trademarks of their respective holders. Matrix source Dataquest 1991 and Dataproducts.

CIRCLE 78 ON READER SERVICE CARD.

Price breakthrough!
• 400 DPI
• Adobe PostScript Level 2
• 11" x 17" format
• \$5695!!



Kiwi POWER WINDOWS



Kiwi POWER WINDOWS does a great job of managing window clutter under System 7. If you typically work with numerous open windows belonging to several applications or spend more time than you care to admit fussing with window size and alignment, this system extension can save you a good deal of time, effort, and aggravation.

You access KPW (Kiwi POWER WINDOWS) through a special menu that resides at the far right of your menu bar. Work Sets, Window Layouts, and Window Selection form the heart of the KPW menu. Although all three are useful and convenient, Work Sets is the most powerful. A work set can consist of document windows from one or more applications, a collection of Finder windows, or a combination of both.

When you launch a work set, all the appropriate applications launch. Then KPW goes about the task of opening, moving, and resizing windows to recreate the desktop as it existed when you saved the work set. Work sets are especially handy with programs that insist on opening document windows in the upper left corner, regardless of where they were when you last issued a Save or a Quit command.

KPW's Window Layouts are predefined window arrangements. If you like windows stacked and offset, for example, choose one of the Stack layouts. You can choose to apply layouts to the current application only (a local layout) or to all open applications (a global layout). KPW includes dozens of predefined layouts, and you can create your own with the easy-to-use KPW Manager application.

Another slick feature is KPW's Window Selection submenu. Many programs have Window menus that allow you to select any open window in the application, but the menus apply only to that specific application. The Window Selection submenu makes this function global, so you can select any open window in any open application. The submenus allow you not only to switch applications but also to activate the windows. This feature is a godsend if you keep three or four applications open at once.

KPW also includes four additional commands — Maximize, Minimize, Rotate

Order, and Send to Back — for managing windows. All have keyboard command shortcuts.

Unfortunately, KPW has a few blemishes. It's slow — windows grow, shrink, and move sluggishly. We also experienced several nonfatal errors, and the program occasionally moved the wrong window. Kiwi promises an update that will not only fix these idiosyncracies but will also include a utility that allows users to access their work sets directly from the Apple menu.

KPW is a unique and powerful utility that gives you the ultimate in control over your application and Finder windows. If you're a System 7 user looking for a utility that can launch multiple programs and documents, restore your windows to preferred positions, and align windows to suit the most finicky of desktop housekeepers, Kiwi POWER WINDOWS will be just your cup of tea.

Kiwi Software, Inc., 6546 Pardall Road, Santa Barbara, CA 93117; (805) 685-4031. Version 1.0. \$79.95.

— Bob LeVitus



Spectre



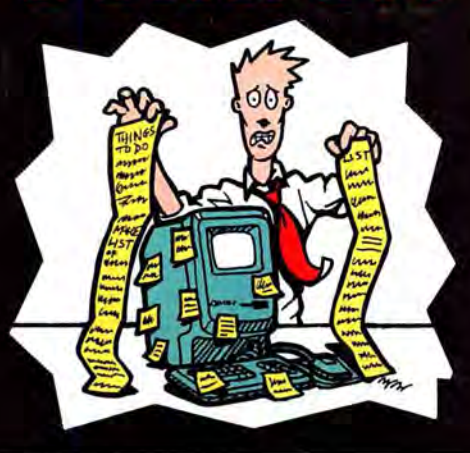
Spectre is a supremely designed arcade game that pits tank against tank in a high-tech version of capture the flag. Similar to the classic game Battlezone, Spectre lets you play in single-user or multiplayer mode over a network.

Spectre's visually impressive virtual landscape, populated by shaded polygons in a variety of shapes, enhances the game's appeal. Animated 3-D windmills and flags move and rotate in perfect perspective. You can switch to wire-frame mode, in which objects are outlined but not filled, making the game almost as fast on a Mac Classic as it is on a IIci.

As you battle your way across the terrain, indicators show when your tank is low on ammo or when you're one hit away from total destruction. Ammo dumps placed randomly across the playing field offer refills and repairs.

You can view Spectre's terrain from a variety of perspectives. The game begins in cockpit view, in which you face forward. With a keystroke, you can switch to either an elevated view that's positioned slightly above your tank, which offers a wider field of vision, or a bird's-eye view that displays most of the battlefield,

Out of Control?



Get

IN

CONTROL

To-Do List Manager

We all make lists. But things still pile up. Or get lost. Important details forgotten.

Now there's IN CONTROL. Quite simply the best way to organize, categorize and prioritize your lists. With our 60-day money back guarantee, why wait? Get organized today.

Because the first step to being in control is getting IN CONTROL.

Call 617-547-2188 now!

ATTAIN

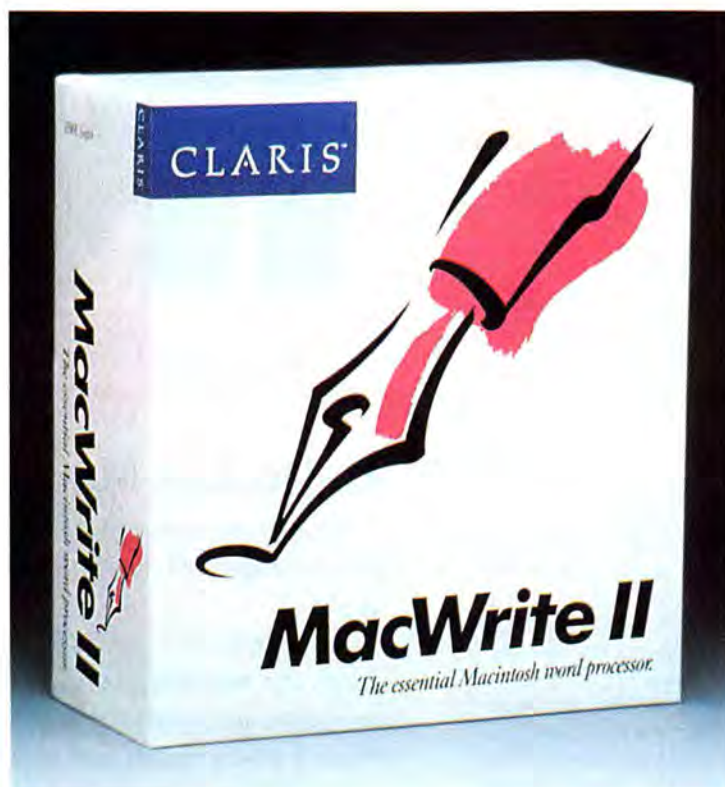
List price \$129.95. In Control is a trademark of Attain Corp. FileMaker is a registered trademark of Claris Corporation. © 1992 Attain Corp. 5 Irving Terrace, Cambridge, MA 02138

NEW

from the creators of
FileMaker®

\$129.

Write on.



Where is it written that a great word processor has to be an expensive word processor? MacWrite® II, in fact, has just rewritten that story. Now it costs only \$129.

A remarkable price for the word processor favored by over one million users world-wide. Everyone agrees that MacWrite II is as simple and straightforward as a well-written sentence. With a rich feature set that's equally accessible. So it's the only word processor you'll ever need.

What are you waiting for? Call 1-800-3CLARIS for the name of your local dealer. And see for yourself why MacWrite II is the essential Macintosh word processor.

CLARIS®

Simply powerful software.™

including your tank's position.

All the views — except the bird's-eye — include a tactical display in the upper right corner of the screen. Blips mark the location of flags, tanks, and ammo dumps relative to the position of your vehicle. Thankfully, Spectre bucks the current game trend toward accurate simulation of dangerous military hardware. You won't find yourself forced to engage in tedious clearance, takeoff, and tactical procedures. With Spectre, you can get right down to the business at hand — namely, blowing up enemy tanks. The controls you use to maneuver your tank are mercifully sparse: You can fire the cannon; roll in one of eight directions; and teleport, which zaps the tank to a random spot on the playing field. Teleport comes in handy when your tank is pinned by enemy fire and you find yourself trying to remember the words to "Nearer My God to Thee."

Speaking of the enemy, enemy tanks on the first few levels of the game are about as clever as oxygen-deprived goldfish. You usually find them hanging around flags, occasionally peppering each other with cross fire as they wait to chase your tanks when you engage them. As you progress to higher levels, however, the enemy gets smarter and more aggressive. Opposing tanks begin to employ actual tactics: One tank distracts you from the front, for example, while another suckers you from the rear.

Windmills and other terrain objects are not there only to provide visual appeal; they're also strategic. Evidently made of titanium or some other indestructible material, they offer protection from enemy fire.

Spectre's multiplayer mode, which works across any AppleTalk network, lets multiple players terrorize the same battlefield. Players can work in teams or let complete anarchy reign, blowing up anything that moves, including each other. A few glitches in Spectre's networking scheme, however, slightly mar an otherwise excellent network game. The program's copy-protection scheme is a serious inconvenience, and you can't play games across network zones.

These quibbles aside, Spectre is one of the best arcade games we've seen in a long time. But watch out — it's addictive and may pose a serious threat to corporate productivity.

Velocity Development, Box 875, Palatine, IL 60078; (708) 991-0594. \$59.95.

— Andy Ihnatko

BACKUP DESIGNED WITH RAMONA IN MIND.

Ramona's our mother. But even she won't use our software unless it's fast and simple. So we designed DiskFit Pro to back up a Macintosh hard disk with just a few mouse clicks.

The first time you use it, DiskFit Pro creates a SmartSet™ — an exact copy of your hard disk. The next time you use it, DiskFit Pro copies and updates only the latest files, keeping your SmartSet clean and tidy. DiskFit Pro even prompts you to back up — just like a mom.

If you're too busy to spend hours learning a backup program, we think you'll like DiskFit Pro as much as Ramona does.

DISKFIT PRO™

To Go Forward, You Must Backup

AVAILABLE AT RETAILERS AND MAIL ORDER OUTLETS WORLDWIDE

Dantz

DANTZ DEVELOPMENT CORPORATION

1400 Shattuck Avenue, Suite 1, Berkeley, CA 94709 • 510/849-0293 • 510/849-1708 FAX

CIRCLE 27 ON READER SERVICE CARD.

CATCH THEM RUNNING IN QUICKTIME™ WITH MovieProducer™ for \$849.00



- Create, Enhance & Edit QuickTime Color Movies.
- MovieProducer includes the best 24-bit Digitizer Board (top rated by MacUser and MacWorld) and the most intuitive, simple, and complete Video Software
- MovieProducer, a Professional Solution at an incredible price, \$849.00. Ask for detailed product information.

**Computer
Friends, Inc.**

14250 NW Science Park Drive
Portland, OR 97229

To Order 1-800-547-3303 tel. (503) 626-2291 fax (503) 643-5379

CIRCLE 26 ON READER SERVICE CARD.

Anything
else
is
just
work.

CLARIS



ClarisWorks™

The new #1 choice for Macintosh integrated software.

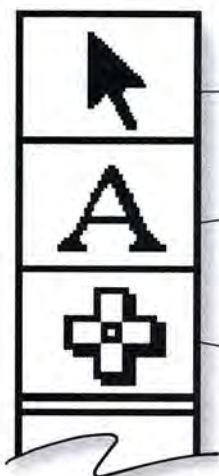
This is exactly the way you wanted Macintosh to be.

The power to effortlessly create documents with words, graphics, spreadsheets, and charts. Without running your mouse through a maze of modules.



ClarisWorks pulls out all the stops with a level of integration that's finally seamless.

Justifiably call a genuine breakthrough.

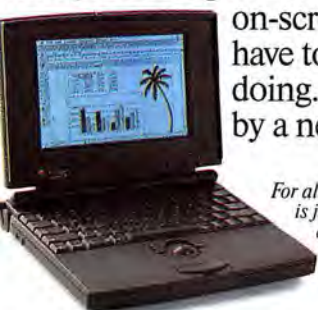


From within a text document, you can click on the graphics tool and start drawing. Or click on the spreadsheet tool and create a spreadsheet right in the middle of your document. Whatever tool you select, its menu bar appears at the top.

Though we simply call it ClarisWorks.™

What ClarisWorks software does is combine word processing, graphics, spreadsheet, charting, database, and communications in one convenient package.

But here's the big difference: To add graphics, say, or a spreadsheet or a chart to a word processing document, simply click the on-screen tool. You never have to leave what you're doing. Or get side-tracked by a new window.



For all its power, ClarisWorks is just 580K. So it never weighs down a PowerBook.

It's an arrangement that, unlike anything else, produces more with far fewer moves.

Not only are ClarisWorks tools always within easy reach, they're amazingly easy to grasp and handle. It's like getting our greatest hits—the most popular features of our leading MacWrite®, MacDraw®, FileMaker®, and Resolve™ programs.

ClarisWorks also doesn't hog RAM. Remaining nimble and quick on Classics and LCs and keeping portables, portable.

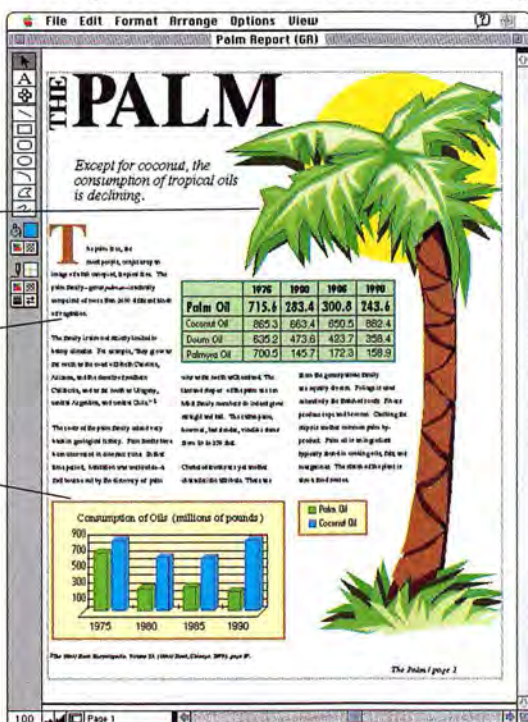


A truly robust integrated package for fully exercising your options in word processing, graphics, spreadsheets, charting, database, and communications.

It's even remarkably simple to share anything you create. With our XTND technology, ClarisWorks can read and write to dozens of popular file formats, like AppleWorks™, PICT, MacWrite II, and Microsoft Works.

Last, but certainly not least, ClarisWorks is a program you can build on.

The menus and commands in each ClarisWorks environment mirror those in our best-selling specialized programs. Enabling you to move to any one of them without starting over at square one. Which makes ClarisWorks the only



integrated program with a true growth path.

So call to trade up from Microsoft Works for just a mere \$99.

Or check out ClarisWorks at your authorized Claris dealer. And get the only works that isn't.



Simply powerful software.™



For a cool, crisp \$99 you can trade up from Microsoft Works. Call 1-800-544-8554, ext. 58, to cash in.*



Personal LaserWriter



Macintosh LC II

Personal POWER

Price and performance are the watchwords for Apple's newest CPU and printer. Although each offers good value, one of them sets a new standard for speed at an affordable price.

BY RUSSELL ITO

If the '80s can be summed up in a single five-letter word — *greed* — then the five-letter word for the '90s may be *value*. Getting more for your money has become the guiding principle of the decade, and Apple has certainly endorsed the concept, with two new value-oriented upgrades. The Macintosh LC II has a 16-megahertz 68030 instead of a 68020, as in the original LC, and the Personal LaserWriter NTR is a fast RISC-based upgrade of the Personal LaserWriter NT. What's most impressive, however, is that Apple has done all this without raising prices. More power for the same cost — what could be more '90s?

New Apple Products

According to Apple, the LC currently outsells the Classic and the Personal LaserWriter NT was the best-selling PostScript printer in the world last year, so these upgrades are being made to two of Apple's most successful personal products. The enhancements are almost all internal. Apart from an additional port on the printer (see Figure 1), the exteriors of the new LC and printer remain basically the same. Both the LC II and the NTR replace their predecessors, and Apple is providing upgrade paths for current owners.

Macintosh LC II: A New LC

The Macintosh LC II is basically the same machine as the Mac LC but with a more powerful processor at its core. Instead of a 68020, the chip that drove the original Mac II, the LC II uses a 16-megahertz 68030, the chip that drives the Classic II. The change generally doesn't boost the LC



Figure 1: Although the Personal LaserWriter NTR looks like the Personal LaserWriter NT, there is one important external difference. This is the first Apple printer to include a parallel port for connecting to PCs and PC networks.

II's performance beyond that of the LC, but the LC II does give you access to System 7's virtual-memory scheme, which wasn't available with the earlier chip.

The only other significant physical change to the LC is the amount of RAM it has. Apple has equipped the LC II with 4 megabytes of RAM on the motherboard, leaving the two SIMM sockets empty. As with the original LC, the maximum amount of RAM is 10 megabytes.

Like the original LC, the LC II comes in two configurations: 4/40 (4 megabytes of RAM and a 40-megabyte hard drive), for \$1,699, or 4/80 (4 megabytes of RAM and an

80-megabyte hard drive), for \$2,049. In addition to the hard drive, the most important difference between the configurations is the amount of VRAM they include. The 4/40 configuration includes 256K of VRAM, enough to drive Apple's 12-inch RGB display at 8 bits (256 colors) or a 13-inch display at 4 bits (16 colors), each using the internal video circuitry. The 4/80 configuration includes 512K of VRAM, meaning that it can display 16 bits (32,000 colors) on a 12-inch monitor or 8 bits (256 colors) on a 13-inch unit.

Even with the newer CPU, however, you won't see a huge performance boost. Our tests on a preproduction unit showed the LC II's performance to be pretty much the same as that of the original LC. Although the LC II was faster in the Illustrator test, it was only marginally faster in the MacWrite II find/replace test and was even slightly slower than the LC in the Excel recalculation and Finder duplication tests (see Figure 2). In other words, for most users, the LC II's performance will be virtually indistinguishable from that of its predecessor — not better, not worse, just the same.

At just about \$2,000, however, a bare-bones LC II system is a good value. If what you're looking for is a relatively inexpensive way to buy into Apple's modular Macs, the LC II is a reasonable choice.

If you already own an LC and are wondering if it's worth upgrading it to an LC II, that's a different question. At press time, Apple hadn't decided on the price of an upgrade. The only real advantages the LC II offers are virtual-memory support and the anxiety relief that comes from knowing you're up-to-date with Apple's current CPUs. Because you aren't going to get much of a performance improvement, if any, the upgrade is probably advisable only if you're neurotic enough to be losing sleep over not having a 68030-based Mac.

Personal LaserWriter NTR: Fast

The Personal LaserWriter NTR retains the same look as the Personal LaserWriter NT, which it's replacing, but it introduces two important firsts for Apple printers and points in a new direction for Apple's subsequent models.

The biggest change from the NT is the NTR's processor, which makes it Apple's first RISC-based printer. Using a 16-megahertz Am29005 RISC processor, the NTR can actually drive its 4-ppm Canon LBP-LX engine at close to the engine's rated speed. As readers of our frequent printer lab reports know, most printer engines aren't driven at their full rated speed, because their processors aren't fast enough to keep up.

And in a nod to the world of mixed computing environments, the Personal LaserWriter NTR is also the first Apple printer to sport a parallel port. So equipped with a parallel cable, you'll be able to use the NTR in a PC as well as in a Macintosh environment. Apple won't be supplying a parallel cable with the printer, however; for that, you'll

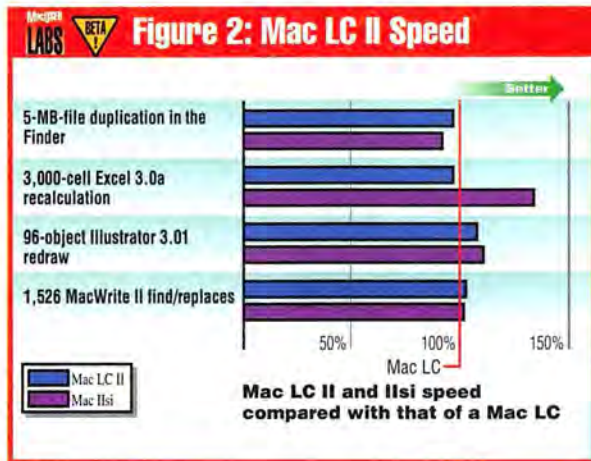


Figure 2: Although the Mac LC II uses a 16-megahertz 68030 processor instead of the 16-megahertz 68020 of the original LC, its performance isn't noticeably better. Overall, you can expect its speed to be about the same as that of the original LC. We conducted the LC and the LC II tests on 4-megabyte machines with 40-megabyte hard drives running in 8-bit-color mode. The IIfx we tested was a standard 5-megabyte machine with an 80-megabyte hard drive. All the machines were running System 7.0.1 with System 7 Tune-Up installed.

need to pay a visit to your local computer store.

The NTR includes Adobe's PostScript Level 2 and Hewlett-Packard's HP PCL 4+ page-description languages, with all ports (parallel, LocalTalk, and serial) active. However, because the printer doesn't buffer its jobs, it runs on a strictly first-in, first-out basis: Whichever document reaches the printer first "owns" the printer until the print run has finished; other jobs don't automatically queue up. The NTR ships with 35 fonts, 3 megabytes of RAM (expandable to 4 megabytes), and Type 1 and TrueType support in ROM. The NTR's list price — \$2,199 — is identical to that of the printer it's replacing, the Personal LaserWriter NT. (A \$1,249 upgrade is available for the LaserWriter NT or SC.)

In our testing of a preproduction model, the NTR's performance was exceptional. The new printer consistently outperformed its predecessor and did so by as much as a third in the text-intensive tests (Excel and Word) and by nearly one and a half times in the graphics (Persuasion) test (see Figure 3). Much to our surprise, the NTR even beat the LaserWriter IIfx in the Persuasion test — and by a substantial margin. If you're thinking of buying a IIfx, we wouldn't suggest that you forget about the IIfx and switch to the NTR, however. Our test involved only five pages; larger print jobs might not show as substantial an advantage, if any.


Considering its flexibility and performance, the Personal LaserWriter NTR has become the standout value in Apple's printer line. It costs about \$1,400 less than the LaserWriter IIfx, but depending on the job, it can hold its

own against the IIfx in terms of speed. The NTR isn't going to knock off the IIfx, however. For all its speed, the NTR is still a personal or small-workgroup printer: It's not intended for heavy use in an office environment, and its paper tray holds a maximum of only 70 sheets. In addition, it doesn't have the resolution-enhancement capabilities that the IIfx does. Compared with other 4-ppm printers, however, the NTR comes out an easy winner, in both speed and flexibility. For example, competing printers took nearly three times as long as the NTR, on average, to complete our graphics test.

Personal Power

The LC II and the NTR are definitely '90s machines. Although the LC II doesn't break new ground, it does level the field for the modular Macs, providing its users with virtual-memory support and the confidence that comes with being current with the technology.

The NTR, on the other hand, offers a substantial performance increase over the Personal LaserWriter NT plus the versatility of having a parallel port. Depending on the job, the NTR can perform nearly as well as the LaserWriter IIfx — even better, in some situations. For a personal printer, it's a simply outstanding value.

But the really good part of Apple's latest announcement is that the LC II and the Personal LaserWriter NTR cost exactly the same as their predecessors. In this value-conscious decade, that may be the best news of all. 

Russell Ito is a senior editor who wishes that the NTR had been around when he was about to dump his ImageWriter II.

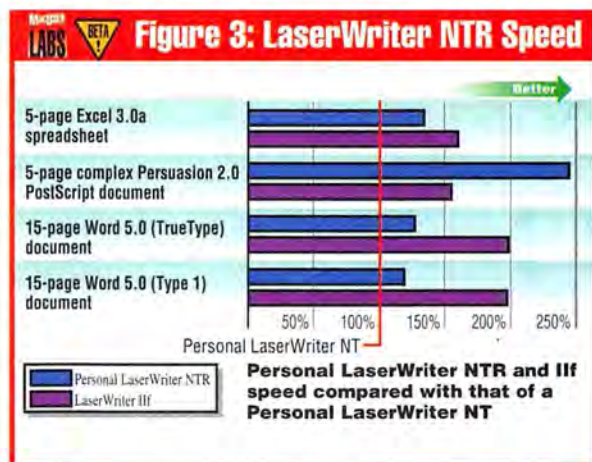


Figure 3: The Personal LaserWriter NTR is an excellent performer. In our tests, the NTR's 16-megahertz Am29005 RISC processor sped the NTR past its predecessor by as much as a third in our text-intensive tests (Excel and Word) and by as much as one and a half times in the graphics test (Persuasion). The NTR actually performed better than a LaserWriter IIfx in the graphics test. We conducted all the tests with a 5-megabyte Mac IIfx running System 7.0.1 with System 7 Tune-Up installed and an 80-megabyte hard drive.

7 REASONS WHY YOU NEED A NEW WORD PROCESSOR.



Because you're ready to see what System 7 can do.

Apple calls System 7 the biggest improvement in Macintosh since Macintosh. And WordPerfect® is now System 7 savvy.

So now (among lots of other new things), WordPerfect will automatically keep track of changes that you (or someone else) might make to imported files (charts, graphics, whatever), and update your WP documents accordingly. Now, a change made in one place can be a change made in many places. Apple calls it "Publish and Subscribe," and it works between programs on your hard drive, as well as among people on

your network. Publish and Subscribe assures you that your documents will always reflect the latest information available.

And it's just one of the new System 7 tricks that WordPerfect 2.1 has mastered.

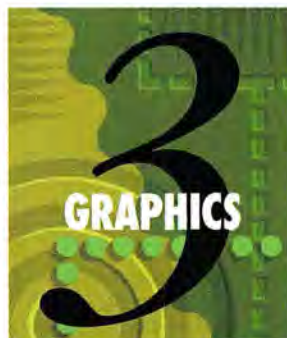


Because WordPerfect does columns better than the Greeks.

Pick a starting point, click on the ruler, and see your text in two columns. Or in three columns. Or five columns. With vertical rules beside or between them, if you like. Drag a guide on the ruler and try *unequal* columns. Highlight text in a box that jumps across columns.

Go crazy with the design, or stick with the tried-and-true.

The point is, WordPerfect gives you formatting options that other word processors don't. And exploring them couldn't be much easier.



Because you'd use more graphics if using them were easy.

WordPerfect not only gives you full control over the placement of graphics in your text, it also gives you a color drawing program for modifying imported artwork (or starting over from scratch) without ever leaving the program.

You can print graphics under your text (as "water-

marks") or on top (as overlays).

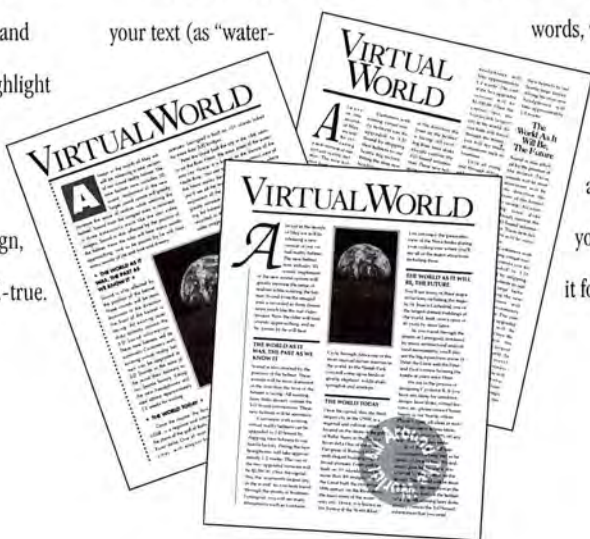
You can use the drawing tools to rotate text to any angle that strikes your fancy (something many page-layout programs still can't do).

And WordPerfect gives you 36 border styles and 64 fill patterns — which you can use in any of 256 colors — for highlighting graphics, paragraphs, columns, pages, even blocks of text.



Because a movie is worth who-knows-how-many words.

If a picture is worth a thousand words, what's a movie worth? With WordPerfect and QuickTime, you can calculate it for yourself.



Apple's QuickTime is a new technology that lets you work with digital video and sound as easily as you now work with text and graphics files.

Imagine being able to place (and size) a QuickTime movie anywhere in a document. You could add urgency to a memo with a few well-chosen words delivered "live." Or help an audience visualize your latest brainstorm with a 3-D simulation they can start, stop and replay.

We have a feeling that words can't begin to describe all the ways you'll think of to use it.



Because you get tired of repeating yourself, yourself, yourself.

Perhaps because they've heard it's a powerful programming

language, WordPerfect's macro editor intimidates some people at first. It shouldn't.

It's no more complicated than a tape recorder. Click "record" and it memorizes your keystrokes. Click "play" and it repeats them.

With no more knowledge than that, you can create a WordPerfect macro. And can spare yourself the effort of formatting M-E-M-O-R-A-N-D-U-M, T-o-; F-r-o-m: (and so on) across the top of the page every time you want to fire off a memo, for example.

But simple as recording your own macros can be, we also ship a number of them with the program. For formatting addresses to print on envelopes. Placing "drop caps" at the start of paragraphs. And other jobs you'd rather not do twice.



Because some people work on DOS computers.

You want the word processor that's right for you. If your choice happens also to be the choice of millions of others — with other computers — so much the better.

That's why WordPerfect is such a good choice. Lots of DOS users use WordPerfect. As well as UNIX, VMS and other users. If you ever find your Mac on a network with other computers,

WordPerfect's compatibility can save you a lot of aggravation. Not to mention a lot of reformatting.



Because even if you never call us, it's nice to know we're here.

Like any good Mac program, WordPerfect 2.1 is easy to use. But unlike many Mac programs, you're not on your own with it. You get toll-free help from one of the largest support staffs in the industry.

For more reasons to try WordPerfect, call for our free video. 1-800-526-2296



WordPerfect®

WordPerfect is a registered trademark of WordPerfect Corporation within the United States and other countries. All other brands and product names are trademarks or registered trademarks of their respective companies. Copyright © 1992 WordPerfect Corporation.

Apple's QuickTime is here, and if you use a spreadsheet, word processor, or presentation package, the way you work may never be the same. Here's how to get things moving.

BY RUSSELL ITO

QuickTime in Action

How many times have you sat in front of your Mac and thought, "Now I'm going to do some *computing*!"? The fact is that computing has very little to do with how people use personal computers.

Personal computing has always been more about personal communicating. It started with words alone. Then came words and pictures. Now, with QuickTime, we can finally communicate by using dynamic data.

Dynamic, or time-based, data includes video, sound, animation, or any other type of information that changes over time. Because the type of data in a dynamic data file can vary from file to file, Apple has created a new file format, Movie, specifically for dynamic data. For the average user, the Movie file format will be just like PICT or Paint. With QuickTime you can cut, copy, and paste moving images in the same way you do most text or graphic objects and then play those movies back without any additional hardware or software.



QuickTime

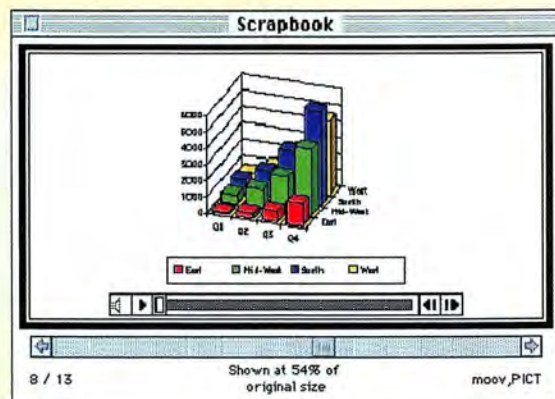
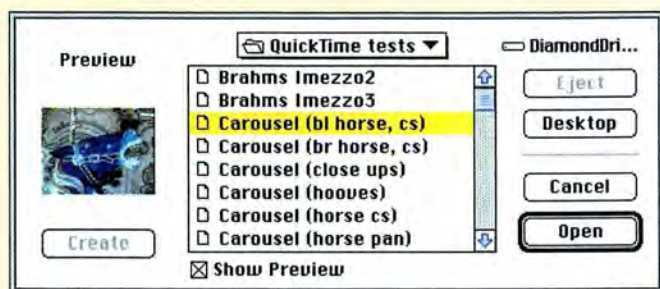


Figure 1: New Human Interface Guidelines are part of QuickTime. The two immediate additions to the interface are the Standard Movie Controller (top) and the Standard File Dialog with Preview (middle). The Movie Controller lets you play and control clips. When you click on the speaker, a fader for volume control pops up. The horizontal slider lets you move through the movie, and Shift-dragging on the slider selects part of the movie for cutting and pasting. QuickTime also comes with a new Scrapbook (bottom) that lets you paste in movies and play them back within the Scrapbook. Because the Scrapbook retains only aliases for the movies it contains, you can paste in many movies without significantly increasing the Scrapbook's size.

Even if you don't have a need for moving images such as video clips, on-screen demonstrations, or computer animations, QuickTime has something else to offer: a still-image-compression algorithm that lets you work with graphics that otherwise would be impractically large and that causes virtually no detectable degradation of the image. (For more on the anatomy of QuickTime, see the "How QuickTime Works" sidebar.)

In addition to defining a new data type, QuickTime also defines two new classes of Mac users: passengers and pilots (to borrow Apple's terms). Most users will be QuickTime passengers. They'll play back and use QuickTime clips just in the same way they use clip art and they'll also use compressed images, but they generally won't spend much time creating new QuickTime material. The pilots, on the other hand, will provide the material the passengers will use. Because QuickTime should be equally useful to both groups, we'll give you an idea of how users in each class can take advantage of QuickTime's components.

Of course, whether you're a passenger or a pilot, you'll need the right hardware and system software before you can use QuickTime. QuickTime runs on any color-capable Mac running System 6.0.7 or later — including System 7. This means that anyone using a Mac LC, a Classic II or a PowerBook 140 or 170, for instance, can use QuickTime. The only caveat is to make sure you have enough memory. If you expect to use QuickTime without raising your blood pressure, we recommend a minimum of 5 megabytes of RAM, and realistically, you'll be happier with 8 megabytes or more. The more you intend to do with QuickTime, the more RAM you should have.

Word Jockeys

Most users spend the majority of their computing time doing word processing, and the printer is the final destination for their documents. For these people, QuickTime offers a change in the nature of documents and in their final form. Going beyond the static word and the printed page is what QuickTime in word processing is all about.

Because you can't create a movie in a word processor, word processing is the ultimate passenger application: Users will incorporate preexisting movies into on-screen documents instead of creating new material. WordPerfect 2.1 is the first word processor to support QuickTime internally, and an installable module should make Word 5.0 a member of the QuickTime club by the time you read this. Incorporating a movie into a document with either application is as simple as cutting and pasting or performing a graphic import (see Figure 2). The applications treat the movie as they do any still image such as a PICT, so you can crop, position, and wrap text around movies too.

Unlike conventional graphics, however, movies aren't actually placed in a file. Instead, you paste in a still image from the movie, called a poster, and the file retains a pointer to the appropriate movie or movie segment. This

lets you add a several-megabyte movie to a file while increasing the file's size by only about 10K or so. As long as the QuickTime file remains accessible on a local disk drive, a shared volume, or a server, the word-processing file will find it.

QuickTime in a text document may seem like a contradiction in terms, but using a dynamic file in a text document can make sense. For example, reading employee-training and -orientation manuals is usually about as interesting as watching paint dry, but incorporating live-action demonstrations into an on-screen document can spice things up. QuickTime movies can also liven up proposals that would otherwise rely strictly on static images or words. For example, each frame of a QuickTime storyboard proposal can itself be a movie and an architectural proposal can contain a movie that flies readers through a building instead of forcing them to see it from a single perspective.

Number Crunchers

Spreadsheet programs are useful analysis tools, but they're not particularly good for analyzing data that changes over time, such as interest rates, stock prices, currency exchange rates, or a company's profitability. Tracking a trend is easy if you can study an animated chart, and such a chart is also much more memorable.

Unfortunately, at this writing, none of the major spreadsheet programs supported the creation of QuickTime movies. However, Microsoft is planning a QuickTime module for both Excel 3.0 and 4.0 that will let you create animated-chart movies.

With the QuickTime add-in installed, you see an additional command, Create a Movie, on the Chart menu. When you select this option, a dialog box appears that offers a variety of options that let you specify such things as the frame rate and whether the resulting animation should be saved as a file or to the Clipboard. This last option is especially useful, because it lets you paste the movie into the Scrapbook and then later paste it from there into any other QuickTime application. With the QuickTime add-in installed, you'll find that creating an animated Excel chart is no harder than creating a static chart (unfortunately, it's also no easier).

Spreadsheet users probably won't have as much use for digital video in their work as users of other applications will, but they will still be able to act as both passengers and pilots, creating and using QuickTime movies in their own work and providing dynamic charts for presentations and reports.

Presentation Performers

The one type of software that probably stands to benefit the most from QuickTime is presentation software. When these software slide shows first appeared, presenters everywhere jumped on the bandwagon. Since

QuickTalk

badge: a small icon (it looks like a strip of film) that identifies an image as a movie; it appears in the lower left corner of a movie's poster.

codec: Quick-speak for *compressor/decompressor*.

compression ratio: a file's original size divided by its compressed size. The higher the ratio, the better the compression.

JPEG (Joint Photographic Experts Group): an international compression standard for high-quality still-image compression; it's a lossy compression scheme that's best suited for natural images such as photographs. JPEG's compression ratios generally fall between 10:1 and 25:1.

lossless/lossy: the two basic forms of compression. In a lossless scheme, no data is lost during compression. In a lossy scheme, some data is irretrievably lost during compression.

movie: Apple's generic term for all dynamic data. The Movie file format can contain any type of dynamic data, including animation, video, and sound.

poster: a still frame from a movie that represents the movie. It's also the frame the user sees when a movie is pasted into a document. Often, but not always, it's the first frame of a movie.

then, those static slides have started looking pretty dull. From that standpoint, QuickTime has come along not a moment too soon.

With the addition of QuickTime, presentation packages have now become quasi-authoring environments. Users who want to create interactive programs can do so without having to learn a complex scripting language such as HyperCard's HyperTalk or MacroMind Director's Lingo. In that sense, presentation packages are the melting pot of QuickTime users, because passengers as well as pilots will find a use for the new data format. Passengers will be able to incorporate QuickTime elements into their presentations as easily as if the movies were clip art, and pilots will be able to generate new movies quickly, supplying the passengers with a ready supply of digital material.

Of the three traditional presentation packages (Symantec's MORE, Aldus' Persuasion, and Microsoft's PowerPoint), Persuasion is the first to incorporate QuickTime. Because QuickTime works at the operating-system level, movies can be imported, sized, and placed as if they were any other graphic, so experienced Persuasion users won't have to learn anything new to jazz up their slide shows with movies (see Figure 3). As with word processors, inserting a movie is just like using clip art.

Animation/presentation packages such as Cinemation, from Vividus, and Magic, from MacroMind•Paracomp, let you add QuickTime movies to your animations, accenting your points with dynamic data (see Figure 4). For example, you could create a series of animated charts in Excel and slide those chart movies into your presentation for emphasis. Cinemation and Magic are path-based programs, so creating animated

QuickTime

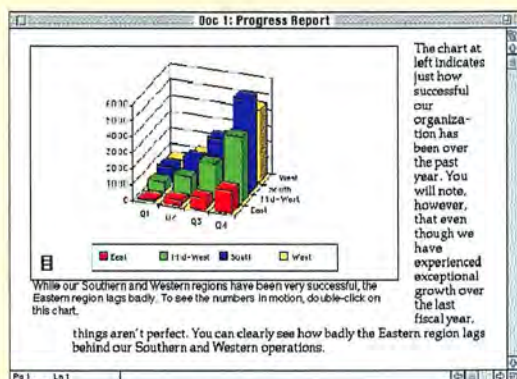


Figure 2: WordPerfect 2.1 is the first word processor to incorporate QuickTime support. This animated chart was created in Excel 3.0 and then imported into WordPerfect. The badge at the lower left identifies it as a movie.



Figure 3: Persuasion 2.1 treats QuickTime movies just as it does any other graphic. You can paste and position them onto slides and then pop the controller down to play them back.

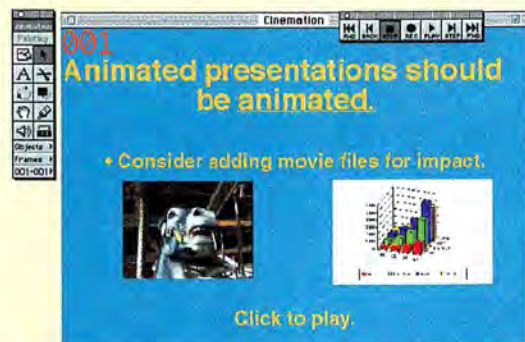


Figure 4: Cinemation was the first presentation package to support QuickTime, and it goes beyond such packages as Persuasion in that it's designed for creating animated interactive presentations. The video movie and chart movie shown here can be animated just as any other graphic can.

presentations with them isn't as difficult as using a more sophisticated package such as MacroMind Director.

QuickTime also benefits users of these presentation packages even if they don't import any movies at all. That's because you can now save the output from your presentation package in the generic Movie file format rather than in the proprietary format of an individual program, so you can create animations in Cinemation or Magic, save them as Movie files, and then import them directly into other applications. Even if users don't have the originating application, they can still run the animation by importing it into any QuickTime-compatible application such as a word processor.

The point of every presentation is to communicate a message effectively. With QuickTime, presenters can further expand their range of communication tools beyond the static slide into animation and video.

Authors and Animators

QuickTime provides multimedia producers, the true pilots of QuickTime, with the one thing they've been missing for so long, a common file format. Now that producers are armed with it, they can exchange files from different applications and, even more, incorporate live video, animated charts, or audio into a single project just by using the Clipboard.

For serious pilots, MacroMind Director will probably continue to be the authoring system of choice, and the next version, which should be out by the time you read this, will support QuickTime. Because the QuickTime-ready version of Director will treat movies just like any other graphic, multimedia producers will be able to continue working with it as they always have.

HyperCard developers will also be able to incorporate QuickTime interactively. Claris is providing a developers' kit, the QuickTime Tools stack. It will let developers install the necessary resources to incorporate QuickTime into their stacks and set playback options for their movies by just clicking on a few buttons.

Somewhat surprisingly, traditional animation packages, with the exception of Director, haven't jumped on the QuickTime bandwagon. In fact, at this writing, only the next release of Director and Motion Works' upcoming PROMotion were slated to support QuickTime. Nonetheless, you can expect all animation programs to support QuickTime in the near future.

Video Stars

QuickTime is going to make video production on the Mac more accessible to more people than ever before. In fact, many passengers may find that for QuickTime to be really useful, they have to become pilots. Unlike clip art, which can be generic, dynamic data should be specific to a particular situation, and a canned collection of video clips can't always provide this level of specificity. Therefore,

users will often need to create their own dynamic data.

A simple way to get your own videotaped images onto your hard disk is to use SuperMac Technology's Video Spigot, a \$600 budget digitizer card. All you have to do is plug in your video source, whether it's a video camera, a VCR, or a laserdisc player; start and stop your capture; and save the file as a QuickTime movie.

However, the Spigot doesn't provide any support for audio, leaving that task to a MacRecorder, and setting up to record digital video and audio is a major hassle. SuperMac has announced plans for a bundle called Spigot & Sound, which will combine a Spigot card and audio capabilities. Although the specifics hadn't been worked out at press time, the plans call for either a bundle of a Spigot with a MacRecorder box or a two-NuBus-card bundle with the MacRecorder implemented as a card.

Once you've collected your video clips on your hard disk (your *large* hard disk), you can edit and arrange them with a digital-editing package such as Adobe Premiere or DiVA's upcoming VideoShop. In effect, editing packages will become to digitizers such as the Spigot what page-layout packages now are to word processors.

Because it's the first editor to be released, Premiere will probably set some standards for future editing interfaces (see Figure 5). Its basic click-and-drag approach greatly simplifies the process of compiling an edited movie, but even so, editing still takes time — lots of time. Don't be surprised if you glance at your watch and find that you've spent two hours working on a clip that lasts barely half a minute.

Although the video will be far from broadcast-quality, QuickTime may make the creation and distribution of simple video programming such as press releases, training tutorials, and video messages a simple in-house activity that won't require hiring an outside production group.

Not So Quick

So now that you're excited about what QuickTime can do, you should become aware of a few of its limitations. Let's start with image size. Although nothing inherent in QuickTime restricts a movie's image size, most movies appear on-screen at 160 x 120 pixels, or just a little larger than four standard postage stamps. You can enlarge the image, but if you do, the image quality (not one of the current QuickTime's strong suits in any case) quickly degrades, and you can forget about sound synchronization. Another reason you'll probably want to settle for 160 x 120 pixels is that that's about the biggest image you can get while decompressing a compressed video image from a hard disk or CD-ROM without additional hardware and while still maintaining an adequate frame rate. What constitutes an adequate frame rate depends on your perspective. For video professionals, that means 30 fps (frames per second); for QuickTime users, that means 10 to 15 fps. Even on an 8-megabyte IICI, you can't expect a frame rate

A QuickTime Checklist

Before you plunge into the world of dynamic data, here are a few items to consider for your shopping list:

- 1. CPU speed/power.** Don't even think about QuickTime production on anything less powerful than an LC II. You need all the power you can get. Also, forget about working with internal video on any Mac other than the Quadras. For any other Mac, get a video card.
- 2. Big memory.** Passengers and pilots need memory. You should plan on at least 8 megabytes of RAM, especially if you're working in color.
- 3. Big storage.** Whether you're a passenger or a pilot, you should have at least one 200-megabyte hard drive. Movies are compressed, but they still take up a lot of room. If you're a pilot, your drive requirements start at 350 megabytes, and a single drive won't be enough.
- 4. Video equipment.** You'll want to record your own material eventually, so you'll need at least a camcorder and probably a VCR too. Although you can play back from a camera, you'll find that plugging the camera in to your digitizer and then unplugging it to shoot more material is more of a hassle than it's worth.
- 5. Sound equipment.** What would video be without sound? Right. Silent. If you want audio in your movies, you'll need an audio digitizer, such as a MacRecorder, from MacroMind•Paracomp. Serious pilots may want to consider a high-end 16-bit digitizer such as Digidesign's AudioMedia card.
- 6. The right cables.** There's nothing more frustrating than being delayed because you don't have the right cable for plugging something in. Check all your connectors to make sure you have the right plugs for the job. RCA plugs are the most common, but you may need miniplugs (stereo and mono), BNC connectors or converters, or S-video plugs (they look like ADB connectors). Always make sure you have more cables than you think you need, because even that won't be enough.
- 7. Digitizer cards.** The quality of your image captures can vary from card to card, so try out several before making a decision. At the same time, however, remember that if you intend to turn your captures into QuickTime movies, you aren't going to get a high-resolution image anyway, so you can scale your ambitions to your output.
- 8. CD-ROM speed.** CD-ROMs are sure to be a popular way to distribute QuickTime movies, so make sure your CD-ROM drive is fast enough to play them. According to Apple, the minimum throughput is 90K per second.
- 9. Removable media.** Although you'll need a large-capacity hard drive to hold your raw material, you'll want to keep your finished QuickTime projects on removable media. You won't be able to fit most of your movies on a floppy, so make sure you have a reliable removable-media system for storage and easy file transport.
- 10. PowerBook video.** If you're going to use a SCSI video device, you should test it for performance first. SCSI video isn't as fast as normal video, and if you have an action-packed presentation, that slight speed degradation can spell disaster.

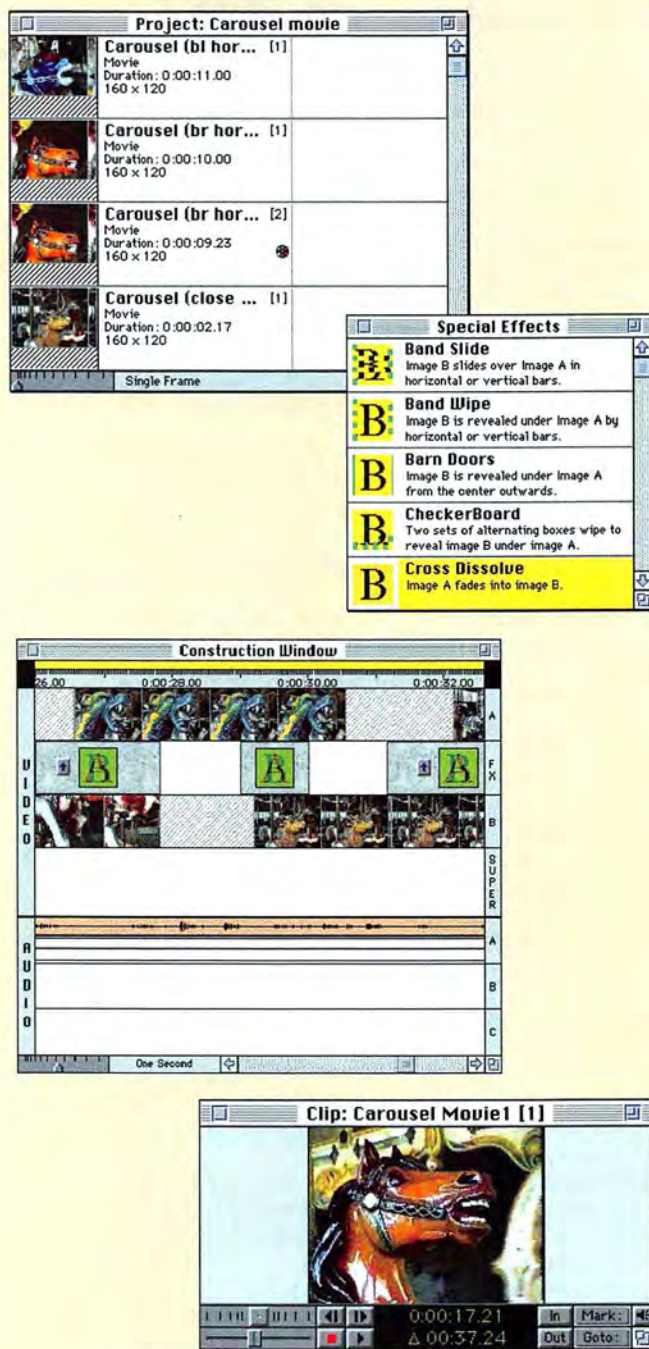


Figure 5: Adobe Premiere turns your Mac into a video editor. Editing movies is both simple and intuitive. Clips are "stored" in a Project window. Premiere's stock special effects, such as dissolves and wipes, are listed in a Special Effects window. By dragging clips and effects to the Construction window, you assemble the plan for your movie. When you're ready, Premiere will compile everything into a single movie file.

How QuickTime Works

Even though the QuickTime extension is represented by only a single icon on your desktop, it actually comprises several tightly integrated components, each of which performs a specific task. In the broadest sense, QuickTime includes four components: system software, Apple Compressors, file formats (PICT extensions for image compression and previews and the Movie format), and human-interface elements (the Standard Movie Controller and the Standard File Dialog with Preview).

System Software

The system-software component consists of three major elements: the Movie Toolbox, the Image Compression Manager (ICM), and the Component Manager. The Movie Toolbox is a set of high-level system-software services that lets developers easily write applications that can both create and incorporate movies. In such applications, inserting a movie will be as easy as cutting and pasting and playing a movie back will be just a matter of clicking the mouse.

The ICM is QuickTime's compression traffic cop. Without QuickTime and the ICM, developers who want to include a compression/decompression scheme in their applications have to write their own scheme, but with the ICM, they just have to make a call to the ICM for the desired type of compression. The actual compression/decompression work is handled at the system level, so developers can focus on creating an application with the assurance that any compression issues will be handled automatically by the ICM. All that passengers need to know about this is that QuickTime applications will always have access to the best compression schemes available for the task at hand.

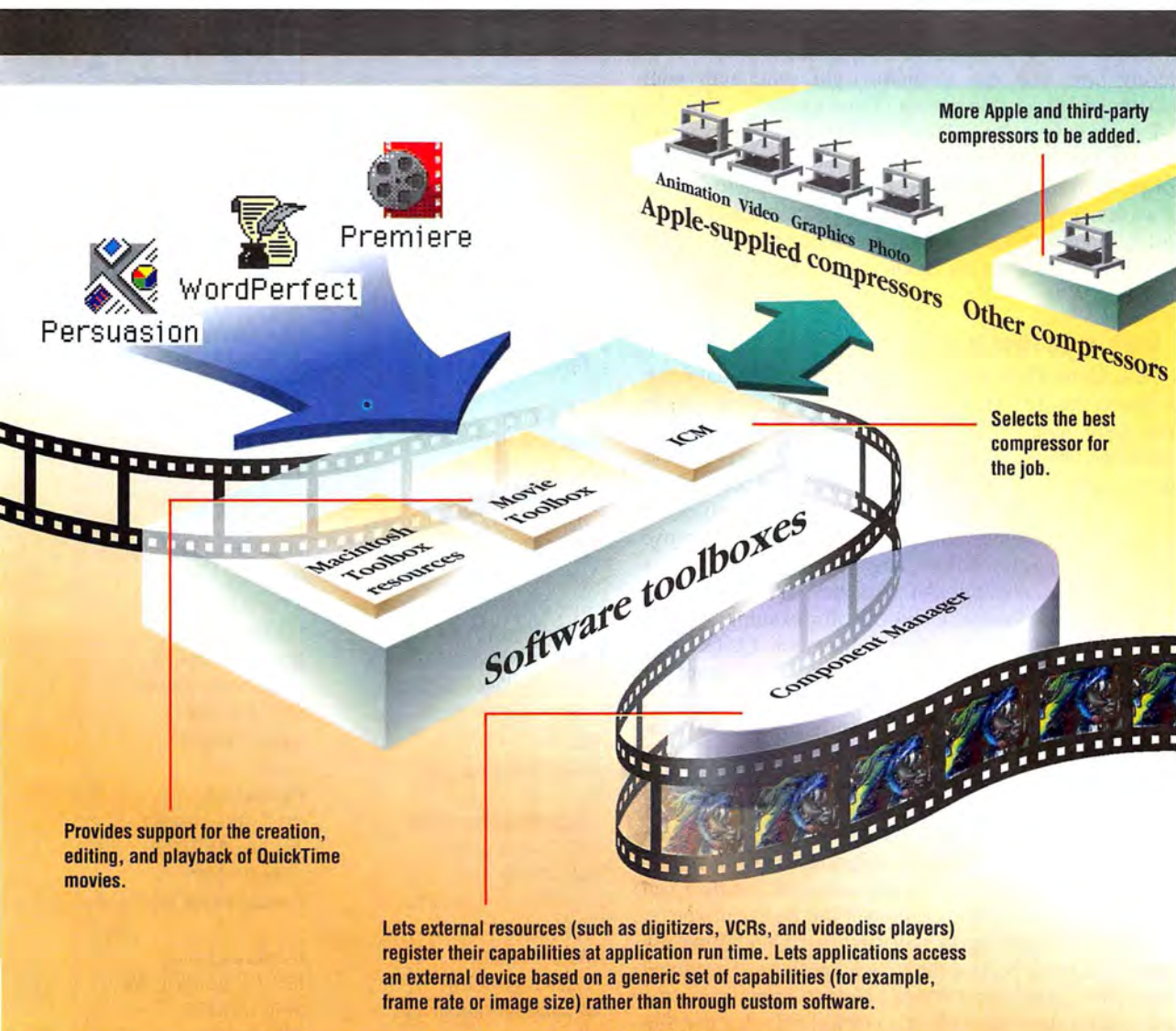
The Component Manager is QuickTime's hardware traffic cop, or, perhaps more precisely, vehicle-registration bureau. The Component Manager lets external resources such as digitizer cards, VCRs, system extensions, and peripheral devices register their capabilities with the system software. Because this is QuickTime's first release, Apple has defined only a single class of devices, digitizer cards, at this point.

At application launch, an external device registers its capabilities with the Component Manager. So, for example, a digitizer card might register its maximum frame-capture rate, its maximum frame size for capture, its highest pixel depth, and so on. Then when an application needs a digitizer card, it only has to request a digitizer card with a specific set of capabilities instead of looking for a specific model from a specific manufacturer, which is what happens without the Component Manager. The Component Manager then checks its registry, finds an available card that matches the given set of criteria, and handles all the necessary communications with that device.

For users, whether they be passengers or pilots, this means that they no longer have to be as concerned with the specifics of their workstation's configuration. For software developers, the Component Manager is a boon, because it lets them create applications that take advantage of devices and extensions without forcing them to create custom software for each product.

Apple Compressors

The Apple Compressor component has four parts: the Photo Compressor, the Animation Compressor, the Video Compressor, and the Graphics Compressor. The Photo Compressor, for still



images, is ideal for compressing and decompressing digitized photographs. It's an implementation of the JPEG (Joint Photographic Experts Group) standard — Apple is the first computer manufacturer to incorporate the standard into an operating system. Using the Photo Compressor, you can expect to achieve compression ratios from 5:1 to 100:1, depending on the image. In general, most users will find their compression ratios falling somewhere between 10:1 and 20:1.

The Animation Compressor is primarily intended for computer-generated images and can operate in either lossless or lossy mode. In lossless mode, the Animation Compressor preserves each frame of an animation as a PICT image. In lossy mode, the compressor preserves only the changes between the frames.

The Video Compressor uses an Apple-developed compression scheme for storing and playing back compressed digitized video. It lets you play back compressed video images directly from a hard

disk or a CD-ROM without any other hardware. With the standard QuickTime frame size of 160 x 120 pixels, you can expect a frame rate of around 15 frames per second. Although the compressor isn't restricted to this small frame size, larger frame sizes will run slower. The compression ratio varies greatly — anywhere from 5:1 to 25:1 — and the compression/decompression times are tied to the speed of the machine: The faster the Mac, the shorter the time.

The Graphics Compressor also uses an Apple-developed compression scheme. It's designed for lossless compression of 8-bit images, either still images or 8-bit movies (such as movies that have been dithered down to 8 bits). Movies compressed with the Graphics Compressor will require only half as much space to save as those compressed with the Animation Compressor. The trade-off is that you'll be able to play them back at about only half the maximum playback speed.

QuickTime

of more than 15 fps, but if you're using a Quadra, its faster processor will let you achieve 30 fps. And if you're wondering how you can maintain tight sync with your soundtrack, the simple answer is, you can't.


Even at its best, QuickTime's video-image quality won't win any awards. If you're expecting photographic quality, forget it. Even if you only expect the same quality as that of a television image, you'll be disappointed. Until we get faster, more powerful computers and better compression schemes, QuickTime isn't going to rival the image quality of your TV.

QuickTime's First Steps

Still, QuickTime's achievements more than outweigh its limitations. Even at this early stage, QuickTime is more than good, and it's only going to get better. Remember how just a few years ago, 8-bit, 256-color QuickDraw was the greatest thing anyone had ever seen, and look where we are now. As faster, more powerful Macs and better compression schemes appear, QuickTime will improve too. Better image resolutions, larger frame sizes, and faster frame rates are coming, and some have already arrived. New Video, of Venice, California, for example, has already demonstrated full-screen, full-motion, QuickTime-compatible DVI (digital video interactive) hardware for the Mac.

For multimedia pilots, QuickTime is a godsend. Without a system-software-level multimedia standard, these users were facing the potential chaos of a field without standards — a situation not unlike that of the printer market on the PC side. Now Apple has saved application developers and third-party manufacturers from having to develop and evangelize separate standards, so they can turn their attention to the creation of innovative products.

Multimedia passengers will find that QuickTime extends their work beyond the two dimensions of a printed page. Now a document doesn't have to terminate at the laser printer down the hall. It's just as likely that that file need never leave its original electronic form. With QuickTime, it won't be too long before you see many applications offering the option of printing to videotape as well as to paper.

Ironically, the beauty of QuickTime is its very invisibility. Once users have become accustomed to the concept of dynamic data, using QuickTime will require as much thought as using the Clipboard — or QuickDraw, for that matter. When was the last time you heard anyone talk about either of those subjects? Once the novelty has worn off, users will be able to concentrate on using QuickTime to communicate more clearly and with more impact. And in the long run, that's what QuickTime in action is all about. 

Russell Ito is a *MacUser* senior editor and former film student who thinks that editing QuickTime movies is a lot more fun than doing desktop publishing.

Directory

Adobe Systems

1585 Charleston Road
Mountain View, CA 94039
(415) 961-4400

Adobe Premiere 1.0, \$495

Aldus Corp.

411 First Avenue S.
Seattle, WA 98104
(206) 622-5500

Persuasion 2.1, \$495

Claris Corp.

5201 Patrick Henry Drive
Santa Clara, CA 95052
(408) 727-8227

QuickTime Tools (ships with the HyperCard Development Kit), \$199

DiVA (Digital Video Applications)

222 Third Street, Suite 3332
Cambridge, MA 02142
(617) 491-4147

DiVA VideoShop, \$595

MacroMind•Paracomp

600 Townsend Street
Suite 310W
San Francisco, CA 94103
(415) 956-4091

Magic 1.0, \$395

MacRecorder, \$249

MacroMind Director 3.0, \$995

Microsoft Corp.

One Microsoft Way
Redmond, WA 98052
(206) 882-8080

Excel 3.0, \$495

Microsoft Word 5.0, \$395

PowerPoint, \$395

Motion Works

1020 Mainland Street
Suite 130
Vancouver, BC V6B 2T4
Canada

(604) 685-9975

PROMotion 1.0, \$495

New Video Corp.

22 Main Street, Suite C
Venice, CA 90291
(213) 396-4000

EyeQ Delivery System, \$2,495

EyeQ Authoring System, \$4,495

SuperMac Technology

485 Potrero Avenue
Sunnyvale, CA 94086
(408) 245-2202

Video Spigot NuBus, \$599

Video Spigot Pro, \$1,499

Video Spigot NuBus Pro, \$1,599

Video Spigot SI and LC, \$499

Symantec Corp.

10201 Torre Avenue
Cupertino, CA 95014
(408) 253-9600

MORE 3.1, \$395

Vividus Corp.

651 Kendall Avenue
Palo Alto, CA 94306
(415) 494-2111

Cinematic 1.0, \$495

WordPerfect Corp.

1555 N. Technology Way
Orem, UT 84057
(801) 222-5800

WordPerfect 2.1, \$495

YOU'VE HAD YOUR MAC FOR FIVE MINUTES. NOW WHAT DO YOU DO?

In just minutes with new GreatWorks 2.0, you'll be outlining, writing, calculating, charting, communicating, drawing, painting, and sorting files.

With eight powerful, integrated applications, GreatWorks™ 2.0 is all you need to become productive immediately. In fact, anything you need to do on your Classic, LC, or portable, you can do with GreatWorks.

No other integrated software does so much, so easily. And for only \$299*.

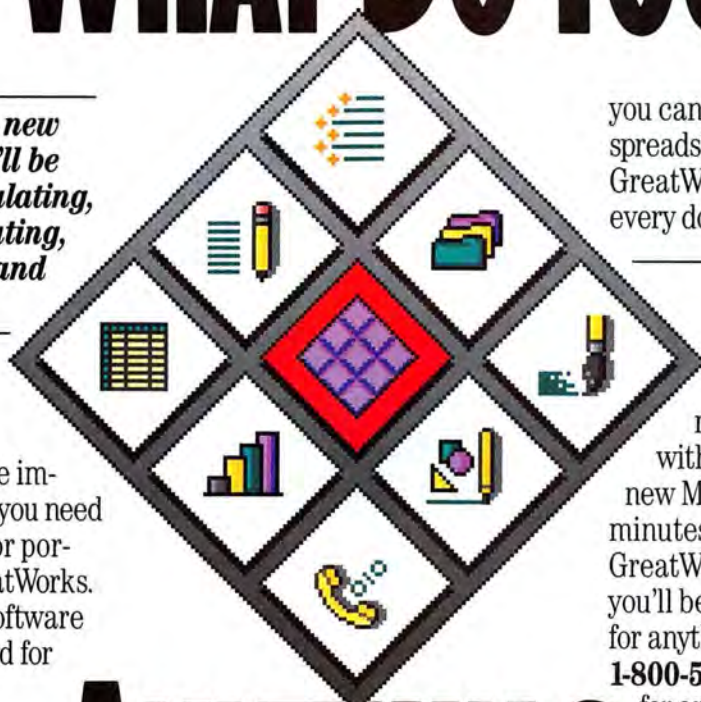
One easy set of commands.

GreatWork's unique CORE

Technologies™ let you use the same commands in every module. Outline or write a document, then bring in spreadsheet data and build a chart.



You get eight full-strength programs you can use separately or as a team to create sharp, professional documents.



you can make changes in your spreadsheet or artwork and have GreatWorks automatically update every document.

So complete, you can't beat it.

So, why waste another moment with your new Mac? A few minutes with GreatWorks, and you'll be ready for anything. Call **1-800-554-4403**

for an instant FAX Data Sheet (enter 150) or **1-800-228-4122, x 818F** for the name of your nearest dealer.

THE GREAT UPGRADE

Already using Microsoft Works™ or AppleWorks™? Send the cover sheet from your manual before 5/31/92, and upgrade to GreatWorks for only \$89!*** Call or visit your dealer.

ANYTHING.

Add your own colorful artwork or logo. Then e-mail it to someone in your database. In minutes. All using the same seamless interface.

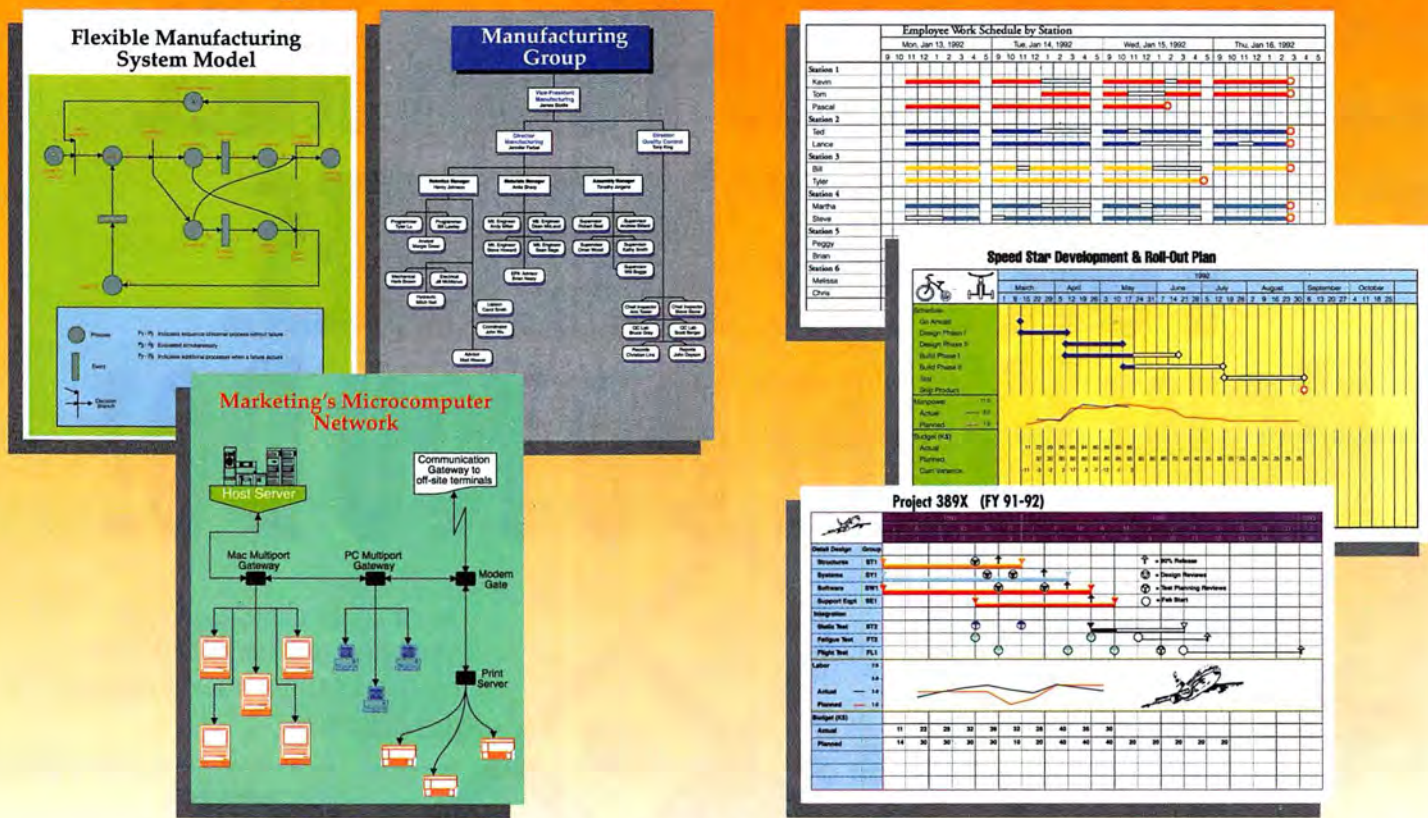
Because it's System 7.0 savvy,



SYMANTEC.

In Europe, call 31-71-353111. In Australia, call 612-879-6577. *Suggested retail price—only in U.S.A. ***\$99 in Canada; valid only in U.S. and Canada. GreatWorks 2.0 is a trademark of Symantec Corporation. © 1992 Symantec Corporation.

How, When, How Much?



The best answers present themselves!

MacFlow

How are you organized? How does it work? How is it done? Flowcharts provide the best answers to important questions like these. And the highest-rated solution (5 Mice – MacUser) for fast, clear flowcharts is MacFlow.

Use MacFlow to produce top-quality charts and diagrams without tedious drawing. Why waste hours drawing a chart with a draw program when you can develop your chart up to ten times faster with MacFlow? Graphically organize complex programs, projects, and structures—fast...

Simply drag predrawn symbols onto a page and connect with lines. Place text in symbols and lines, and even include your own custom symbols. Change the chart as desired; lines stretch and stay attached. Create stand-alone flowcharts that can be freely distributed. MacFlow is also System 7-savvy, letting you publish your charts. Translate to/from text, Acta, and MORE outliners.

Get MacFlow today for better charts tomorrow.

MacSchedule

When will it happen? When is break-even? How much will it cost? Gantt chart schedules with integrated financial data provide the best answers to important questions like these. And the best solution for fast, clear project schedules is MacSchedule.

Use MacSchedule to plan projects and keep them on track and within budget. MacSchedule automatically creates and manages a project calendar. Just specify tasks and indicate task timing with the mouse. Status tracking is also as easy as a click of the mouse.

Integrated spreadsheet and graphing capability ties data to schedule tasks. Include budget and manpower requirements and project trends. Automatically develop calendarized cost estimates and cost/schedule variance with the Earned Value Analysis feature in MacSchedule PLUS. Place schedules in documents for proposals and reports or create slides, overheads, and wallcharts.

Get MacSchedule today for better schedules tomorrow.

For a free demo disk and catalog, phone, write, or fax Mainstay today. CIRCLE 77 ON READER SERVICE CARD

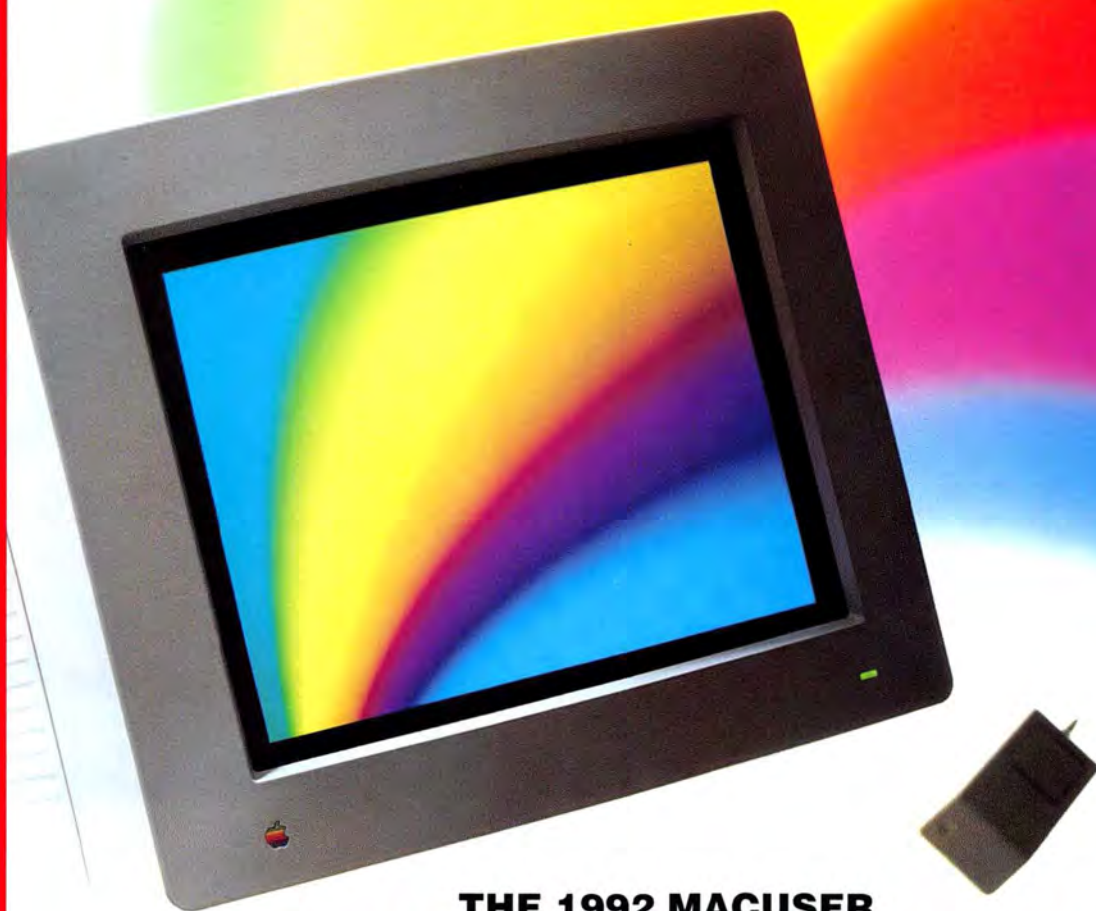
MacFlow, MacSchedule, and other Mainstay products are available through retail and mail-order outlets worldwide. Ask for them at: MacConnection, MacWarehouse, MacZone, Mac's Place, Egghead, CompUSA, and other fine retailers and mail-order resellers.

Mainstay, 5311-B Derry Avenue, Agoura Hills, California 91301; (818) 991-6540; (818) 991-4587 fax
Mainstay Europe, 71 rue des Attrébatés, B-1040, Brussels, Belgium; 322/733.97.91; 322/732.32.46 fax

Mainstay

BUYER'S GUIDE

MacUser



THE 1992 MACUSER COLOR BUYER'S GUIDE

Color is a powerful tool you can use for desktop publishing; for graphic-arts presentations; and even for getting more mileage out of business applications such as word-processing, spreadsheet, and database programs. But it can be a mystifying puzzle to put together all the pieces of hardware and software in a color Mac system. Here's a guide to help you figure out three of the most challenging components of your color system. We look at video accelerators, the most cost-effective upgrade for boosting color productivity; take a snapshot of three emerging categories of color printers that challenge the widely used thermal-wax-transfer technology; and, to start things off, present a primer on how to integrate the diverse input, output, and image-processing techniques required for today's full-color Macintosh.



Made for Macs.
Not only are the new
FG series of monitors
made specifically
for Apple Computers,
we also make
many other Apple
compatible peripherals,
from CD-ROM
devices to a
full line of
printers.



NEC and Radius have designed a display

Presenting display systems that will be the apple of Macintosh™ users' eyes.
NEC's 15", 17" and 21" MultiSync® FG™ display systems.*

A combination of NEC's award-winning monitor technology, and a display interface card specially designed for NEC FG monitors by Radius™, these display systems give you the flexibility you've never had before.

By providing you with multiple viewing modes. Which allow you to use all sorts of different applications more effectively. Whether it's a business program, desktop publishing or any other type of software.

For instance, condensed modes let you increase your resolution and desktop size. So you can display more on-screen information and do everything from putting two documents

side by side, for easy cutting and pasting, to displaying more cells in your spread sheets.

There's also a 72 DPI mode which gives you a WYSIWYG view of your final output. And expanded modes that let you enlarge images and get a closer look at your work.





system that will make you open wide and say ahhh.

But the best part is, as you change applications, you can switch to any of these modes on the fly. Right from the control panel. You don't even have to restart the computer.

There's more. Our MultiSync FG monitors feature FullScan™ capability, for edge-to-edge images. And our exclusive AccuColor™ Control System lets you adjust your on-screen color to match your printed output. The MacFG™ Board is NuBus™ compatible and includes QuickDraw™ acceleration. And it's available in two versions. The MacFG 8X supports 8-bit color and the MacFG 24X supports 24-bit color.




15" MultiSync
3FGx Monitor
MacWorld Magazine,
March 1992

If they don't make your eyes pop out of your head, nothing will.

For a listing of all available DPI/viewing modes and other neat stuff we didn't have room to include, call 1-800-NEC-INFO. In Canada, 1-800-343-4418. For immediate information via fax, call 1-800-366-0476, request #62234.

Once you take a look at these display systems, we're sure you'll see things our way.

Because  is the way you want to go.

CIRCLE 143 ON READER SERVICE CARD.

NEC

A Mac Color Primer

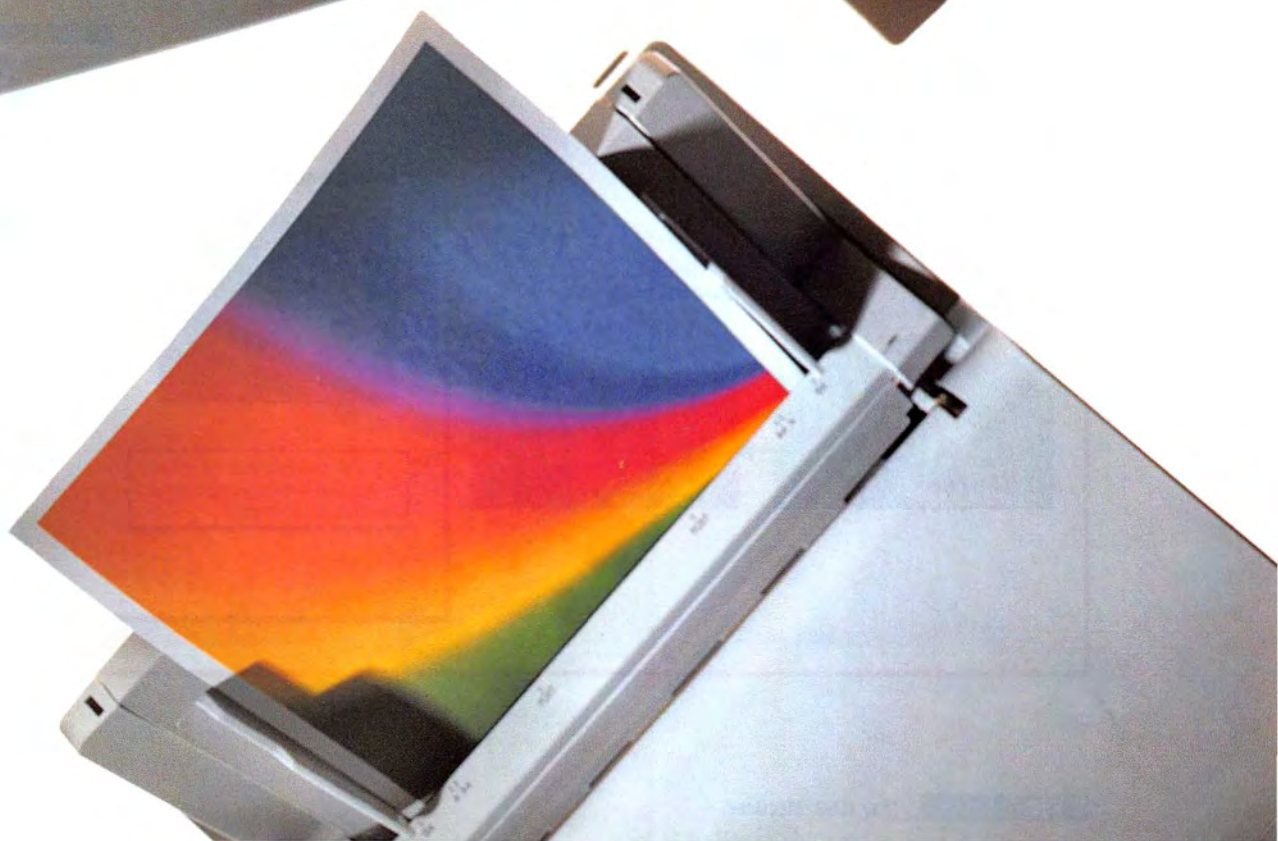
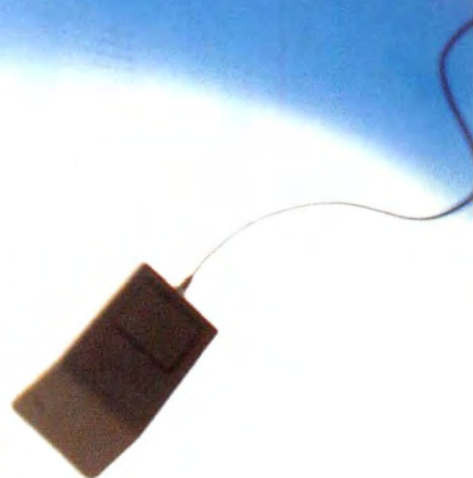
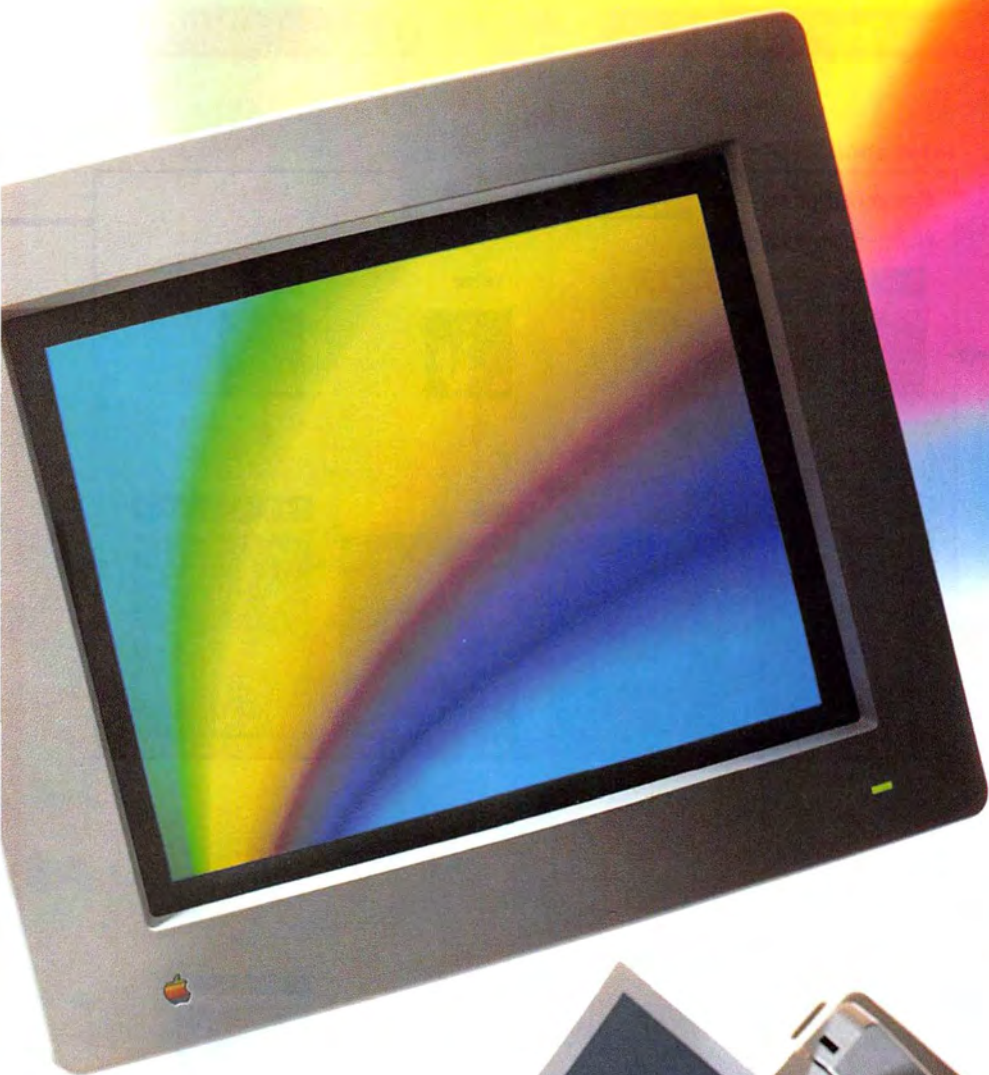
If you aren't using color, you're missing 16.8 million golden opportunities. MacUser Labs takes you on a guided spin around the Mac color wheel.

BY PAUL YI

AND THE MACUSER LABS STAFF

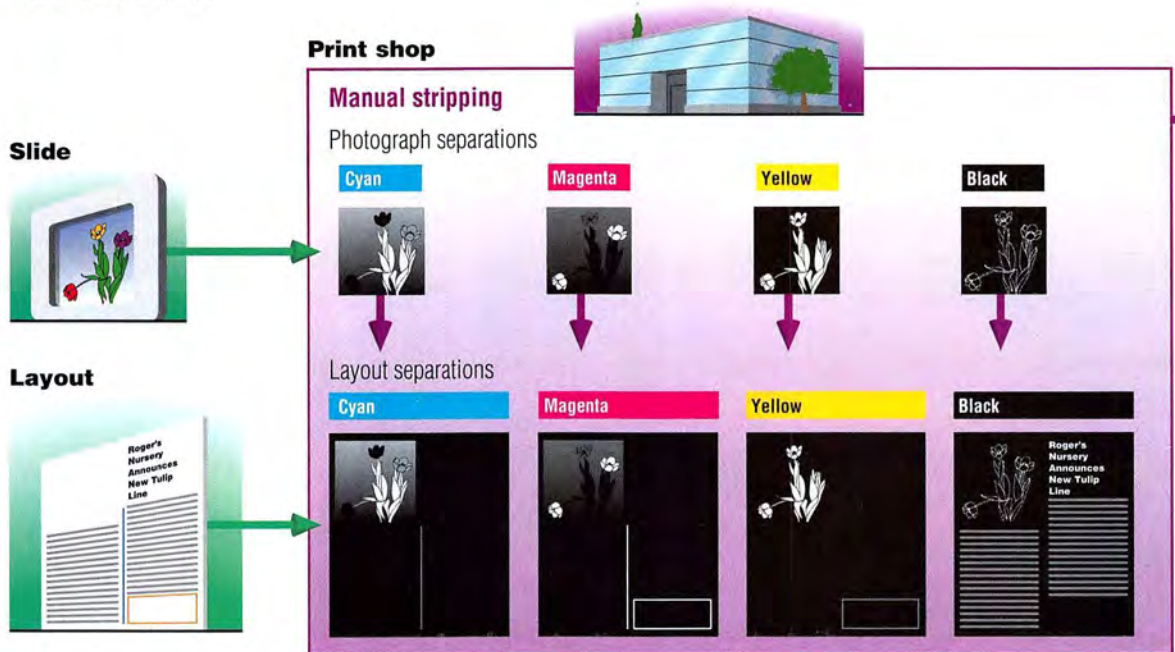
Getting into the desktop-publishing game is relatively easy these days: Just buy a Mac, a page-layout program, and a laser printer, and you're in business. But when color is part of the picture, the desktop-publishing model becomes more complex. And it can get downright convoluted as you dip deeper into color-production issues — color models, printing methods, and the like.

But let's face it: Color on the Mac is well worth the hike up the learning curve. Using the Mac for many color business applications doesn't require anything more technical of you than locating your color inkjet printer's power switch. For this report, MacUser Labs takes a look at color desktop publishing. We follow a real-world project through the production cycle and discuss some of the tools you'll use each step of the way, from capturing the original color image and getting it into your Mac to manipulating the image on-screen and printing it.

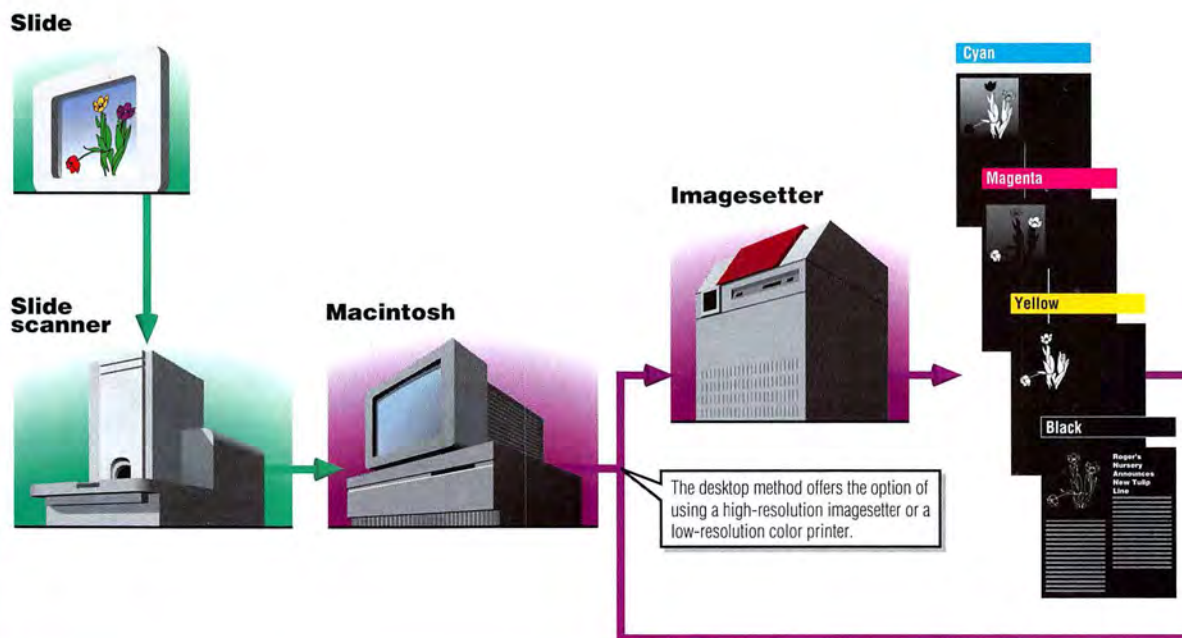


Traditional Versus Desktop Color Printing

Traditional method



Desktop method



Final output



The first step in traditional color publishing involves a trip to a *separation* house — a specialized graphic-arts shop that converts your color slide or print into the three separate colors (cyan, magenta, and yellow) of the subtractive primaries plus black, for the four-color printing process. This used to be a photographic process, but today separations are typically generated by high-end digital scanning equipment from such companies as Hell, Crosfield, and Scitex. Rather than being shot through a series of filters, the image is scanned and the color information is electronically separated into its component four colors. The film separations are cut and pasted — *stripped* — together in a *flat* with any line art for each printing color. Each flat is then laid over the plate material and exposed in a vacuum frame; the result is that color's printing *plate*.

The Mac can save you a couple of steps and give you more flexibility. You can perform the scanning, placing, and separating in-house. Depending on your quality requirements, you'll need some expensive hardware. And you'll need to work closely with your print shop's staff to figure out the best settings for the separations.

Final output



Final output



Any business can make good use of color to enhance its image in presentations, annual reports, financial graphics, and the like. Let's say you operate a small wholesale nursery and you decide to branch out into the mail-order market. You'd like to launch a direct-mail campaign with a professional-looking catalog of your offerings, lush plants and flowers. Your catalog should be of the highest quality; you want people to plant your catalog on their coffee table, not at the bottom of the bird cage.

Although many steps in the production process for printed materials of any quality are the same, the low and the high ends part company at several points. We'll clue you in as we go along. So while the professional photographer you've hired is shooting all the gorgeous photos for your catalog — preferably slides, for the best color quality from the very beginning — let's talk about color on the Macintosh.

WYSIWYG?

Many of the color photographic images you see in print — in books, magazines, and so on — are the result of the four-color-printing process, which tricks the eye into perceiving a series of cyan, magenta, yellow, and black (CMYK) dots of ink on the printed page as the original photograph. Hold an extra-high-powered magnifying glass or a printer's *loupe* up to one of the plant photographs in this article, and you'll see the dots. The original color photograph or slide is *separated*, either photographically or electronically, into each of its component colors, resulting in a separate sheet of graphic-arts film for each color. A separate printing plate is then made from each of these sheets of film (see the "Traditional Versus Desktop Color Printing" sidebar).

Nowadays, you can do much of this work on the Macintosh. You can scan photographs in to your Macintosh and manipulate and correct the color balance with image-enhancement software. You can print to desktop color

printers, which are also based on the four-color process, or you can print color separations as film to a high-resolution imagesetter at your service bureau.

But don't underestimate the complexity of working with color. First-time Mac color users who print to a desktop color printer or generate separations from their files are often surprised when their output barely matches the colors they saw on the screen. The reason is that monitors display colors as a combination of red, green, and blue (RGB) light and a printer deposits cyan, magenta, yellow, and black ink on paper. These two color systems are significantly different, and translating between them isn't easy. Monitor-calibration software is designed to make your on-screen image match your original photo, but when you print — either complete output from a desktop color printer or separations from an imagesetter — the color generated is dependent on the *printing device's* color system, not on the color you see on your monitor.

One recent innovation, Electronic for Imaging's Cachet, is a unique solution to the problem of the device-dependent nature of color on scanners, monitors, and printers. Cachet lets you adjust the on-screen colors of your image to match the colors of a reference image that has already been color-corrected and printed. Cachet comes with a database of various reference images for a wide variety of printers, including the Dupont 4Cast and the QMS ColorScript, as well as imagesetters.

Adobe's PostScript Level 2 can also address the problem of the device-dependence of Mac color printing. Level 1 of the PostScript page-description language provides a common device-independent language for outputting text and graphics on any printer. PostScript Level 2 achieves such device-independence in the area of color graphics.

Before you can get started, you need a color-capable Mac — a 68020-based

The trouble with most 24-bit color products is that they do the job exactly as their name implies, bit by bit by bit by bit.

Fortunately for all those long suffering graphic designers who are terminally bored with color changes taking minutes or hours to complete, Radius introduces the PrecisionColor 24x™ and the

Rocket 25i™ combination.

Together they blow away all existing



performance standards.

Individually, they stand on their own as well. For instance, the Rocket 25i eliminates your system's performance bottleneck and allows your Mac to deliver the fastest response possible. In fact, the Rocket's 68040 chip allows it to whip along at speeds up to 6 times

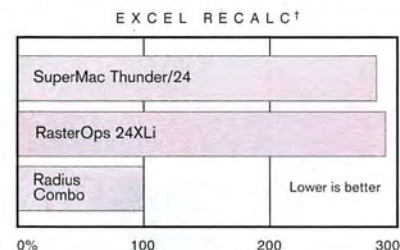
24-bit color.

**Now available
with the Rocket.**

©1992 Radius Inc. The Radius logo and all Radius product names are trademarks of Radius Inc. For your local Radius International Reseller call 408-434-1010. Other brand and product names are trademarks of their respective holders. *Compatible with the Mac II, IIfx and IIfx. †All tests performed on identical Mac IIfx systems with 8MB of system memory. The Rocket 25i populated with 8MB of RAM. **Based on MSRP February, 1992

W E M A K E O R D I N A R Y C O M P U T E R S

faster than your current Mac II*. Which means you really increase the overall



performance on all your applications,

like Microsoft Word and Excel, not just graphics applications.

But when the job does call for graphics performance, the PrecisionColor 24x card delivers. A radiant 16.7 million colors. On-board QuickDraw acceleration that functions like a built-in turbo. Multiple resolutions including WYSIWYG and 2

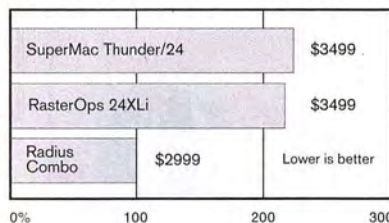


page mode. As well as compatibility with virtually any multi-frequency monitor for the Macintosh.

When you put the Rocket 25i and PrecisionColor 24x together you'll be flying through QuarkXPress, Aldus PageMaker, Adobe Photoshop and all graphics applications. Giving you lightning fast page composition, image rotations, filters, and RGB to CMYK conversions.

Therefore, it stands to reason our

PHOTOSHOP UNSHARP MASK†



PrecisionColor 24x/Rocket 25i combination will beat the pants off the \$3,499 SuperMac Thunder/24. And quickly humble the \$3,499 RasterOps 24XLi.**

When you consider the Radius combination starts at a special bundled price of \$2,999, the others seem to be asking an awful lot for very little.

Just call 1-800-227-2795. Or 1-800-966-7360 for immediate faxed information. We'll tell you how to get the performance capabilities of your color system up to speed.

At prices that are down to earth.

CIRCLE 195 ON READER SERVICE CARD.

DO EXTRAORDINARY THINGS

radius™

Figure 1: Input (The Hewlett-Packard ScanJet IIc)



Original image



Hewlett-Packard ScanJet IIc



Calibrated print

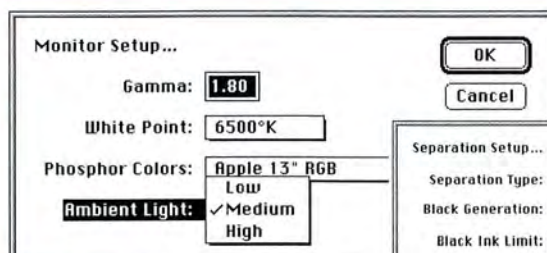


Uncalibrated print

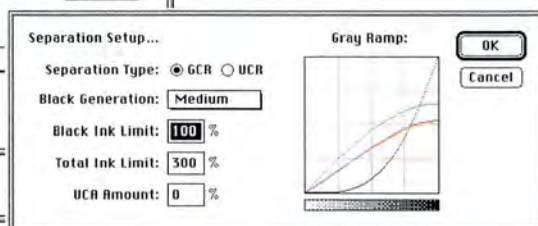
Figure 2: Image-Editing Software (Adobe Photoshop)



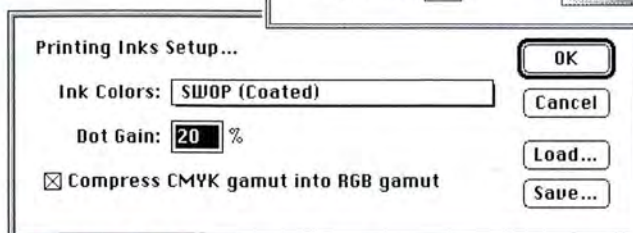
Adobe Photoshop



Monitor Setup



Separation Setup



Printing Inks Setup

Figure 3: Output (The Tektronix Phaser III PXi)



Screen image



Tektronix Phaser III PXi



Simulate Display print



Normal print

Figure 1: The Hewlett-Packard ScanJet IIc's software calibrates your scan to your output. The difference between the calibrated and uncalibrated scans and the original photo can be dramatic.

Figure 2: Besides being a powerful image-editing application, Adobe Photoshop lets you adjust the colors for display and provides tools for customizing your separation settings for your printer.

Figure 3: The Tektronix Phaser III PXi is a plain-paper color printer that uses Adobe PostScript Level 2, which can accept device-independent color data from the Mac. Until more applications support Level 2, Tektronix is bundling a printer driver for making basic color adjustments. One such adjustment feature, Simulate Display, produces a print that better matches the on-screen image.

model such as the LC or a 68030-based model such as a Mac II-series machine. If you're still limping along with an old Mac Plus or SE, it's time to upgrade. The ROMs of these relics of the original Mac family don't have Color QuickDraw, which allows you to manipulate color images. No amount of system-software upgrading can help.

The original color Macs required a separate video card, but the IIci, LC, IIsi, and Quadras ship with color video built in, so you don't have to buy a separate card. Depending on its video circuitry, each of these Macs can support a different monitor size and number of colors (see "Shopping for the Right Mac," March '92, page 128). As shipped, for example, the LC can support the Apple 12-inch RGB monitor at 16 bits, for 32,768 colors. With additional VRAM (video random-access memory), the Quadra 700 and 900 can support a 16-inch color monitor at 24 bits, for a full 16,772,216 colors.

The 256 colors of 8-bit color are plenty for most business projects, but for the type of color control necessary for your plant catalog — the use of image-retouching and graphics applications — you'll want the broad range of hues and tones of 24-bit color. You'll probably also find it convenient to work with a monitor larger than 16 inches, such as a 19- or 21-inch monitor, which lets you work with two pages simultaneously.

Unfortunately, working with 24-bit images at large screen sizes taxes the Mac's processing power — and your patience. The Mac's main processor bears the burden of manipulating all that image data, and the result is an annoying time lag between when you move the mouse and when the shifted object finally drops anchor. An accelerated-video card speeds up the processing of QuickDraw commands, so if you're planning to produce a catalog regularly, you might consider getting one (see "Chasing Rainbows: Accelerated-Video Cards," in this Buyer's Guide).

Capturing Color

How you choose to get color into your Mac depends on the quality you want for the final product. One of the most common ways is to use a *flatbed scanner*; with such a scanner, you place your photo on its glass in the same way as you place a single page on the platen of a photocopier. When we last looked at flatbed scanners, we found that the quality of 300-dpi flatbed color scanners was better than ever and that the prices had dropped to an all-time low: Some street prices were less than \$1,500 (see "Capturing Color: 24-Bit Scanners," December '91, page 152).

For a high-quality catalog, you want to start with slide film, which records a greater range of colors than print film does, and you want to use a *slide scanner*, such as one offered by Agfa, Array, Barneyscan, Howtek, or Leaf Systems. Slide scanners offer higher resolution and better quality, albeit at a higher cost, than flatbed scanners do — for example, the Barneyscan 4520 costs \$27,995; the Leafscan 35, at \$9,995, is a surprisingly low-priced product in this category.

You'll get still higher quality, at a much higher price, by using a desktop *drum scanner*. Products in this class are targeted at service bureaus and in-house production departments that can bear the high cost — the Pre-Press Technologies SpectreLink costs \$29,995, for example.

To skip the scanning step entirely and eliminate photography costs, you can use a camcorder or a digital camera to grab still-frame shots and get them directly into your Mac. But if the point of doing so is to save money, keep in mind that you'll need to outfit your Macintosh with a video-frame-grabber board, such as the Computer Friends ColorSnap+ or the RasterOps XLTV. And the still-video-image quality isn't very good. Although you might consider walking through your plant nursery with a camcorder to grab images for an in-house accounting database, chances are that you won't want this image quality for any part of

your direct-mail marketing effort.

Scanning is an art. Don't think that you can just eye a photo and figure out the best settings for your scanner software. Fortunately, with some recent developments in color-scanning software, you don't have to become an overnight expert. The Hewlett-Packard ScanJet IIc, for example, includes software that automatically sets the contrast and the brightness for the images you scan (see Figure 1). If you choose a scanner other than the ScanJet IIc, you can use a product such as Savitar's ScanMatch software to calibrate your scanner to the image you'll be scanning. If you place the ScanMatch color target on the scanner, the software can determine the scanner's characteristics and ensure that the images you scan are accurately reflected on your display.

The color you see on-screen, however, can vary from one display to another. Even on a single display, colors can change as electron tubes and phosphors age. A device called a *display calibrator* can help maintain colors by measuring and then adjusting a display's color characteristics — its tonal range and the color of its white. Radius, RasterOps, and SuperMac all offer calibrators that can measure and adjust these color characteristics for a variety of display systems. The RasterOps CorrectColor Calibrator also functions as a *colorimeter*, a device that can measure the absolute color on the screen and on a print or a slide. Combined with the right software, the CorrectColor Calibrator can accurately maintain color from the original to the screen and finally to the print.

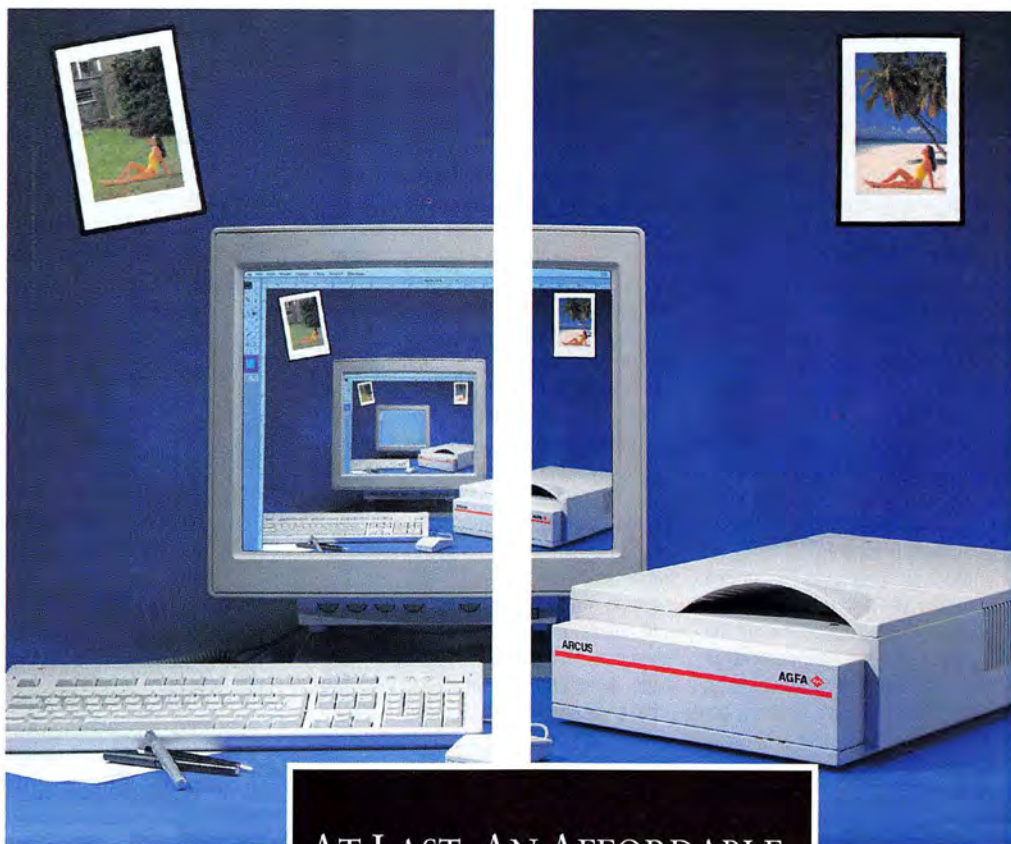
If you still don't like what you see on your monitor after scanning — or if you want to digitally airbrush your image, for example — you can do so by using image-enhancement software. Programs such as Adobe Photoshop (see Figure 2) and Fractal Design's ColorStudio let you manipulate the color layers of an image for best output, and they provide special-effects tools that let you alter the appearance of the scanned image. You can crop and resize the image, and you can also alter the scanned image's resolution if, for example, you decide to use a low-resolution version of the image for position only (FPO).

In Full Bloom

With the catalog completely laid out, you're ready to print. Desktop color printers have come a long way

Table 1: Color-Input Methods

Input method	Cost	Pros	Cons	Ideal Users
Camcorder/VCR 	\$500 to \$2,000	<ul style="list-style-type: none"> • Fast and convenient. • Easy to use. • Inexpensive media. • No processing required. 	<ul style="list-style-type: none"> • Poor quality. • Need video-capture hardware. 	<ul style="list-style-type: none"> • Artists and multimedia enthusiasts. • Visual-database users.
Electronic camera 	\$500 to \$4,000	<ul style="list-style-type: none"> • Fast and convenient. • Easy to use. • Inexpensive media. • No processing required. 	<ul style="list-style-type: none"> • Low-end products match only the quality of camcorders and VCRs. • High-end products require users to have photographic skills. 	<ul style="list-style-type: none"> • Producers of informal in-house projects. • Visual-database users.
Flatbed scanner 	\$1,500 to \$5,000	<ul style="list-style-type: none"> • Easiest way to get color images into the Mac. 	<ul style="list-style-type: none"> • Midrange quality. • Can't meet the demands of prepress. 	<ul style="list-style-type: none"> • Beginning color users. • Graphics professionals who need FPOs.
Slide scanner 	\$2,000 to \$30,000	<ul style="list-style-type: none"> • High quality. • Best way to get slide images into the Mac. 	<ul style="list-style-type: none"> • Expensive for casual users. 	<ul style="list-style-type: none"> • High-end-graphics artists doing prepress work or high-quality desktop publishing.
Drum scanner 	\$30,000 to \$100,000	<ul style="list-style-type: none"> • Highest quality available. 	<ul style="list-style-type: none"> • Large footprint. • Expensive. 	<ul style="list-style-type: none"> • Professional color separators.



AT LAST, AN AFFORDABLE
1200 DPI, 10 BIT SCANNER
THAT CLOSSES THE GAP
BETWEEN DTP AND DTP.

Mac or PC. Design studio,
advertising agency, service
bureau or print shop.

Let's face it : you're not
completely satisfied with the traditional 300 dpi scanner
standard, but you don't want to spend a fortune on higher
quality. That's what we call the gap between DTP and
DTP.

Arcus closes that gap. A superbly designed 10 bit
flatbed CCD scanner with a 1200 dpi resolution, a fast
one pass and over 1 billion colors. Plus software, a fully
integrated transparency module and of course the Agfa
service.

Let your Agfa representative or dealer show you how. Just
call 1-800-685-4271 to arrange a visit (In Canada, call 1-
800-387-9533) or send us the attached coupon.

Arcus. The ultimate quality standard in affordable
color and black/white scanning. Now.

() Please send me further information on Arcus.
() Please arrange for a representative to contact me.
Name.....
Company.....Position.....
Address.....Tel. No.

Please mail or fax this coupon to



Agfa Division of Miles Inc.
200 Ballardvale Street
MS 200-4-7D
Wilmington MA 01887
1-800-685-4271
Fax: 1-508-658-4193

CAT

AGFA Agfa

The complete picture
CIRCLE 43 ON READER SERVICE CARD.

Steps to Better Color

The key to successful color offset printing is good communication with your print shop's staff at the planning stage. If you want to get your Mac color project commercially printed, don't begin work until you've had a good heart-to-heart with your printer about paper stock, type of press, plates, and inks. Such factors will influence decisions you make as you create your publication. For example, halftone dots enlarge during the course of making plates as well as during the printing process itself, when the ink hits the paper. *Dot gain*, as this effect is called, can cause colors to change or images to plug up.

The amount of dot gain varies among printing presses and also depends on the type of paper you use. Your print shop will be able to give you a dot-gain-percentage figure. You can use this information to compensate for the problem before it becomes one, prior to the film-separation stage. Different applications handle dot-gain compensation differently. Aldus


PrePrint, for example, lets you select the type of press and paper with dialog-box option buttons. Other applications such as Adobe Separator have a *transfer function*, or curve, to which you can make midtone adjustments based on the percentage of dot gain. Adobe Photoshop compensates for dot gain, depending on the printer you select when you change the format of an image from RGB to CMYK.

Another good reason to have a conversation with your printer is to save yourself some money. Offset lithography encompasses a variety of platemakers and other photomechanical equipment, much of which has been in use for decades. Depending on the type of press and the specific plates or process it uses, your print shop may need negative or positive film or have other film specifications. Find out what's required before making a trip to your service bureau, to ensure that you get the right thing.

— Laura Brown and Brian Blackwelder

forms, presentations, overhead transparencies. For a project such as a catalog, one of the many plain-paper printers on the market — such as the Tektronix Phaser III PXi (see Figure 3) — is just fine as a rough proofing device.

To print the catalog, however, you take your file to a service bureau to have it produce imagesetter-film output, which you give to the people who do your printing. Before going to the service bureau, however, have a talk with the staff at your commercial print shop to discuss the particulars of your job (see the "Steps to Better Color" sidebar).

Working with color on the Mac can require nothing more of you than using your imagination, or it can be an incredibly complex pursuit. The tools required depend on your output needs. Consider the level at which you want to jump in, figure out the quality you want, and buy hardware and software that can fulfill your expectations. 

from the original ImageWriter with a multicolored ribbon, bringing a variety of ink and engine technologies to the desktop (see the lab updates in this

Buyer's Guide). In-house on-demand color printing is fast and convenient and can be cost-effective for many applications: press releases, order

Paul Yi is a former *MacUser* associate editor currently pursuing a career as a consultant and technical writer.

A Colorful Past

For more information about many of the products and color-technology issues covered here, have a look into *MacUser's* colorful past:

"Big Screens for Small Macs: Mac LC and IIsi Color Display Systems," February '92, page 156 — Lab report on 11 large-screen (15- to 21-inch) color displays. Includes a discussion of ergonomic issues, how 8-bit video works, and test results.

"Capturing Color: 24-Bit Scanners," December '91, page 152 — Lab report on 9 color flatbed scanners. Includes test results and tips for better scanning.

"The Affordable Rainbow: Color Inkjet Printers," October '91, page 140 — Lab report on 4 color inkjet printers. Includes a discussion about the future of color printing, a summary of test results, and information on using the ImageWriter II for color printing.

"Living with Living Color," July '91, page 217 — Power Tools tutorial on using 24-bit color. Includes advice on when not to use it and a discussion of disk-space and speed issues.

"Radius Pivot for Built-In Video and Radius Color Pivot," June '91, page 58 — Hardware review of 2 Pivot monitors. Includes a discussion of the Pivots' design and a performance evaluation.

"The Perfect Image: True-Color Displays," May '91, Buyer's Guide page 4 — Lab report on 20 color display systems. Includes a discussion of true color for the Mac LC, QuickDraw acceleration, color tracking, and gray linearity and a summary of test results.

"Easy Hard Copy: Color PostScript Printers," May '91, Buyer's Guide page 38 — Lab report on 5 thermal-wax-transfer printers. Includes a discussion of how color printing works, device-dependent color, and new products and a summary of test results.

"Painting Programs: The Fine Art of 32-Bit Color," March '91, page 134 — Lab report that looks under the hood of some 32-bit painting programs — Delta Tao's Color MacCheese, Electronic Arts' Studio/32, SuperMac's PixelPaint Professional, and Zedcor's DeskPaint — and compares them with photo-retouching and object-oriented drawing software.

These articles can be downloaded from ZiffNet/Mac, *MacUser's* on-line service. Look for the filename COLPAS.CPT in Library 1 (Special Reports) of the MacUser Forum (GO MACUSER).

Maybe they'd get more involved if your presentation had a higher I.Q.*

***Image Quality, that is.**

Introducing Proxima® Ovation.™ The fully portable family of LCD projection panels that provides the most vivid color images available today.

Showcase your computer or video images crisply and clearly, utilizing the latest LCD technology and up to 226,981 true colors.

Ovation offers a dynamic range of multimedia capabilities to move and motivate your audience. Project computer presentations, video recordings, computer animation, TV, even live images from camcorders.

Ovation projects whatever you can see on your PC or Macintosh® monitor. Just place the Ovation panel on an overhead projector, connect the panel to your computer, VCR, camcorder, or other output device, and you're ready to impress your next audience. Make your presentation even more interactive with the Proxima Cyclops™ pointer system. It's like a cordless mouse. Point, click, and pull down menus—right from the projection screen.

There's a Proxima product for nearly every presentation and price range—from monochrome data projection to full-color animation and video. For the name of the dealer nearest you, call **1-800-447-7694 today**. Ask for our booklet which explains the advantages of using today's LCD projection panels.



PROXIMA®

Proxima Corporation 6610 Nancy Ridge Drive
San Diego, CA 92121 (619) 457-5500

In Europe: contact Horsterweg 24, 6191 RX Beek, The Netherlands, +31-(0)43 65 02 48. Ovation and Cyclops are trademarks of and Proxima is a registered trademark of Proxima Corporation.

*Other brand and product names are trademarks of their respective owners.
© 1991, Proxima Corp. All rights reserved.

CIRCLE 68 ON READER SERVICE CARD.

*Ovation projects to the big screen the big color and clarity that you see on your computer monitor.
Above right: Actual computer monitor image.
Above: Actual projection screen image from Ovation LCD projection panel.*

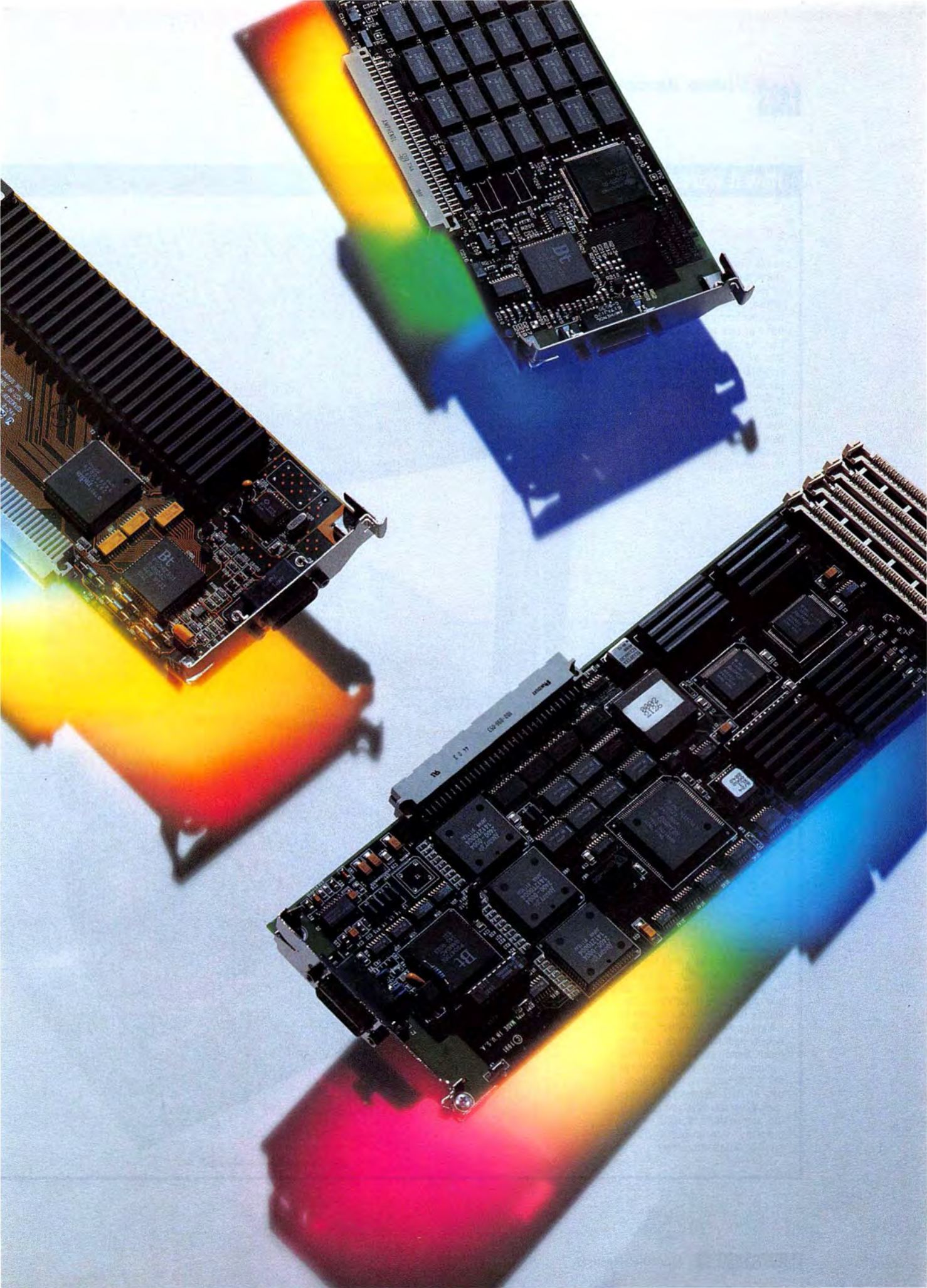
Chasing Rainbows: Accelerated-Video Cards

Full color on the Mac is beautiful but slow, thanks to not-so-QuickDraw. MacUser Labs tests eight video accelerators that promise to improve display performance.

BY WINN L. ROSCH AND THE MACUSER LABS STAFF

Waiting has turned into an art form: Think of the frustration of the concertgoer still standing in line when the music begins or of the Macintosh user watching as line after line of a true-color image is slowly drawn on the screen. The concertgoer, with the help of a scalper, can shortcut the ticket line — for a price. The Macintosh user, with the help of an accelerated-video card, can put more zip into true-color image displays — also for a price. But with accelerated-video cards costing as much as \$4,000, the speedup had better be substantial. Is it? Or can some other technology provide more cost-effective Mac-celeration?

MacUser Labs set out to answer these questions by testing eight accelerated-video cards that plug in to a NuBus slot in your Mac — the CalComp ChromaVision QuickPlus, E-Machines Futura MX, Radius PrecisionColor 24X, RasterOps 24XLi, RasterOps 24XLTV, SuperMac Spectrum/24 PDQ Plus, SuperMac Spectrum/24 Series III, and SuperMac Thunder/24. We ran each through a series of tests based on everyday operations and then ran through the tests again, using a CPU accelerator instead of the video accelerators, to see if overall CPU acceleration was a better solution. As a control, we also performed the same tests with a Generation Systems Designer 24 unaccelerated-video card in both 8- and 24-bit modes.



How It Works: Video Acceleration

Unaccelerated-video card

An unaccelerated-video card receives video data over NuBus and stores that data in video memory, or VRAM **1**. When you move the mouse, scroll through or zoom in on or out from a document, or position a graphic for placement, every pixel that's changed must be generated by your Mac's CPU with the help of QuickDraw commands. The resulting video data travels across NuBus into the VRAM on your video card. Performance is limited by your Mac's CPU speed and its ability to generate the new video data as well as the speed at which this data can travel over NuBus.

1

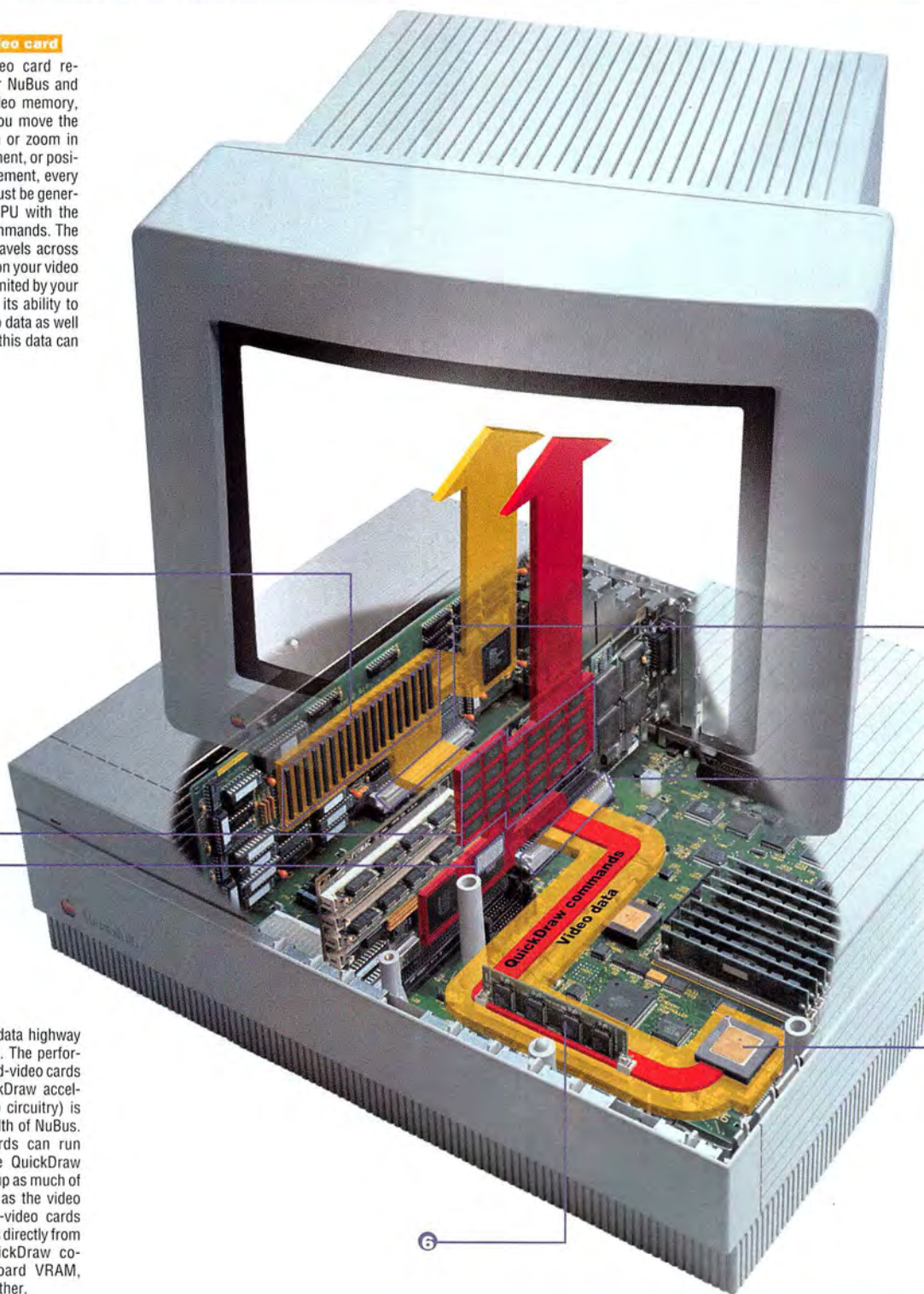
3

2

NuBus

NuBus is your Mac's data highway to expansion cards **4**. The performance of unaccelerated-video cards and stand-alone QuickDraw accelerators (without video circuitry) is limited by the bandwidth of NuBus. Accelerated-video cards can run much faster, because QuickDraw commands don't take up as much of the NuBus bandwidth as the video data of unaccelerated-video cards does. Video data travels directly from the accelerator's QuickDraw co-processor into on-board VRAM, avoiding NuBus altogether.

6



Accelerated-video card

Accelerated-video cards receive QuickDraw commands over NuBus. An on-board QuickDraw processor **2** converts the commands into video data, which is stored in VRAM **3** before being sent to the monitor. Because less data travels over NuBus and the on-board processor can execute QuickDraw commands much faster than your Mac's processor can, screen updates such as scrolls and zooms are much faster with an accelerated-video card than they are with an unaccelerated-video card.

Some accelerated-video cards now contain GWorld memory, which stores off-screen video data. The use of GWorld memory can, among other things, speed scrolling and animation in software that takes advantage of this feature.

4

CPU

The CPU **5** in your Mac is limited in its ability to process QuickDraw. When you install a video accelerator's system-extension software, supported QuickDraw commands are intercepted and sent to the video card instead, freeing your Mac's CPU to work on other tasks.

5

ROMs

The ROMs in the IIci and newer color Macs contain 32-bit QuickDraw **6**, the graphics environment used by the Macintosh operating system to display true-color information. Macs preceding the IIci require a system extension for 32-bit QuickDraw.

— Jeff Pittelkau

Our findings were surprising. Certainly, accelerated-video cards speed up your display's response time, but the degree of acceleration depends on the type of work you do. A CPU accelerator speeds up your entire Mac: Applications run faster and input and output requests are handled more quickly, for example. An accelerated-video card, on the other hand, is designed specifically to speed up the display on your monitor. For example, with a CPU accelerator, you'll notice a speed improvement when you apply a Photoshop filter to an image, but for faster screen updating when you place that finished Photoshop image into your PageMaker document, you'll probably want an accelerated-video card.

Full Color Isn't Fast

On a monochrome screen, image updates appear almost instantaneously. When you put some color into the picture, however, things start slowing down. Eight-bit-color images take noticeably longer to move around the screen, and with 24-bit-color, there's enough of a lag between the time you move an image and the time it ultimately drops anchor to frustrate most users.

The reason is simple. The Mac has to process only 1 bit of data per pixel for a monochrome image but must process 32 bits per pixel for 24-bit-color images. (Although their purpose is as yet undefined by Apple, the extra 8 bits — the *alpha channel* — are used by many applications for special effects.) As you move up from a 13-inch monitor to a 19-inch one (more suitable for color applications and desktop publishing), the amount of data your Mac must process to put a color image on-screen more than doubles, to more than 3 megabytes' worth per screen. As all this image data moves through your Mac, it faces two bottlenecks: your Mac's CPU, which must build the pile of pixels to put onto the screen, and the throughput of NuBus, over which image data must travel between the Mac's CPU

and the video card. If you've ever watched a full-color graphic image slowly ratchet its way down a screen, you know how frustrating working in 24-bit mode can be.

Accelerated-video cards get around both bottlenecks. Such a card has a separate on-board microprocessor as well as RAM for storing video data. As you're working on an image, the microprocessor intercepts and processes calls made by your application to *QuickDraw*, which manages the drawing of all on-screen text and graphics on your Mac. The Mac's CPU is free to continue with the application as soon as the QuickDraw command has been issued, rather than doing the work itself. And because the video data is stored in RAM on the accelerator card, only the QuickDraw commands pass across NuBus, further reducing the amount of data passing through this choke point.

Vendors can choose from various alternatives to use as the accelerator card's on-board microprocessor. CalComp opted for an off-the-shelf Texas Instruments 320C30 digital-signal processor (DSP) as the video processor on its accelerator. Other manufacturers have gone a step further and have crafted their own chips, called ASICs (application-specific integrated circuits). These chips, which are optimized for carrying out QuickDraw instructions, can execute some video commands 100 times as fast as your Mac's CPU can.

Although speeding up your Mac's CPU can also accelerate QuickDraw performance, the reverse is not true — accelerating QuickDraw does not result in faster CPU performance. Consequently, CPU-intensive tasks such as the use of Photoshop filters or Illustrator previews benefit greatly from a CPU accelerator but gain little from an accelerated-video card.

Limiting Travel Across NuBus

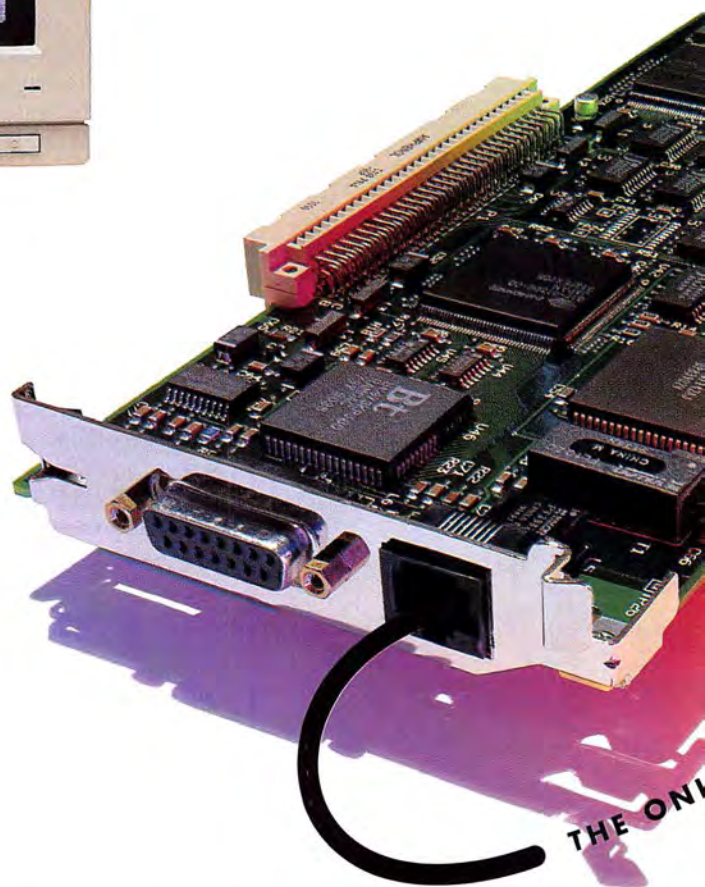
The less data that must travel over NuBus, the better. As already mentioned, a way of limiting this is to store all necessary video data on the

NICE



APPLE 16-INCH DISPLAY

One Choice: One-Page



THE ONLY BUSINESS CARD ...

E-Machines continues to set the 16-inch standard for business productivity. With "switch-on-the-fly" dual resolutions, accelerated 24-bit color, video-out and integrated 10BaseT Ethernet networking. On one card, that drives any display, costs less than a single function card and takes up only one slot.  You get the increased productivity of viewing

JUST RIGHT



E-MACHINES 16-INCH DISPLAY

Two Choices: *Two-Page and One-Page*

ACCELERATED COLOR CARD WITH AN INTEGRATED
ETHERNET 10BASET NETWORK CONNECTION.

WITH THE RIGHT CONNECTIONS

up to two pages, and fast Ethernet data exchange that allows you to see more and do more in a lot less time. Nice with any display. Just right with an E-Machines 16-inch display.



CIRCLE 151 ON READER SERVICE CARD.



E-MACHINES
E-Magination at work™

For your nearest dealer, call or write.
9305 SW Gemini Drive, Beaverton, OR 97005
Fax: 503-641-0946

1-800-344-7274

card that contains the video processor, thus eliminating the need for video data required by the card's processor to pass across NuBus. In addition, some accelerated-video cards include slots for *GWorld* memory. *GWorld* memory stores just the off-screen video data, resulting in an improvement in scrolling speed.

The RasterOps 24XLi and the SuperMac Thunder/24 both have sockets that accommodate *GWorld* memory. RasterOps also allows on-board memory that's otherwise assigned to *GWorld* memory to serve as a RAM disk. Putting *GWorld* memory onto an accelerator card removes the NuBus bottleneck by placing the accelerator's microprocessor chip and the memory in which it stores its image data on the same card. Unfortunately, few applications currently take advantage of *GWorld* memory.

The speedup *potential* of video acceleration is immense, once you consider the advantages of ASIC-based QuickDraw acceleration and efficient use of NuBus. But for all the cost of accelerated-video cards, the return can be small. In fact, many applications don't benefit at all. For a program to take advantage of video acceleration, it must use QuickDraw. Not all programs do. Similarly, for an application to take advantage of *GWorld* memory, it must be written specifically to do so. Currently, most are not. The processing required for other operations — ordinary program overhead — is still handled by your Mac's CPU and takes just as much time as before.

How Fast Is Fast?

To get our bearings on which applications benefit from accelerated-video cards, what form of acceleration is most effective, and exactly how much benefit you can expect from investing in specific products, we set up a series of structured tests based on real-world applications, including Photoshop, Word, Canvas, and PageMaker. We ran all the tests on the same system, a Mac IIci, connected to the same

On the Horizon

Making screen response snappier by installing an accelerated-video card can reduce user frustration. But to really speed up your Macintosh's performance, other solutions are necessary. According to one developer, QuickDraw operations actually represent only about 5 percent of the total processing time in any session; you can get better response from your Macintosh by accelerating the other 95 percent of the system. Consequently, many manufacturers are focusing their attention on CPU acceleration.

Radius, for example, is enhancing its Rocket CPU-coprocessor technology. The company's goal is to enable you to add multiple Rockets to your Mac, creating what it has named the Saturn V, after NASA's giant '60s-vintage spaceship. Each of the Rockets comprising the Saturn V will be able to run a program (or part of a process) independently, as if each Rocket were a separate Mac.

You will, for example, be able to make a time-consuming manipulation in Photoshop more bearable by burying it in the background. Load the Photoshop job onto one Rocket, hide it under System 7, and then run another job on another Rocket while the first process continues. Because each job has its own Rocket, each will run at full speed. Although the video response may not be any quicker, you'll get more work done in a day. And as developers bring out distributed-processing schemes for such CPU-intensive chores as rendering, you'll be able to distribute parts of the same job to multiple Rockets, thus speeding up the total job significantly.

SuperMac is taking a different approach to acceleration. Rather than simply accelerating the entire Mac, it's targeting the full

strength of a 40-MIPS (millions of instructions per second) RISC processor directly at applications most used by DTP and DTV (desktop video) professionals. In June 1992, it plans to release the SuperMac ThunderBolt, a NuBus card based on the SuperMac Thunder/24, reviewed in this report (Thunder/24 owners will be able to upgrade their accelerated-video cards with a simple snap-in daughtercard).

The SuperMac ThunderBolt will require application-specific software modules that off-load processes from the Mac's CPU and transfer them to a MIPS R3000 RISC processor — SuperMac is claiming performance improvements as great as 1,000 percent. Two sets of such modules — ThunderDTP and ThunderEffects — will be bundled with the ThunderBolt at release, and more are expected soon. ThunderDTP will allow users of page-layout packages such as QuarkXPress and PageMaker to drastically reduce the time needed to pour and modify text and will also speed image and object repositioning. ThunderEffects will reroute the processing of Photoshop image-manipulation filters into the RISC processor, thus improving a common and time-consuming operation that's immune to the effects of video accelerators.

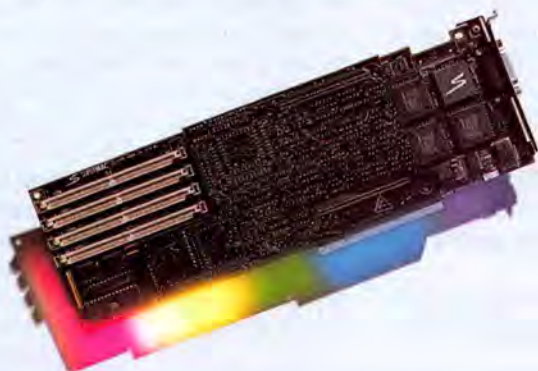
The ThunderBolt comes complete with its own operating system, a debugger, and a development environment that SuperMac will be opening up to third-party developers later this year. Expect many of the top DTP and DTV vendors to develop their own modules as they try to keep demanding professionals happy during the wait for the Apple/IBM PowerPC. Pricing was not firm at press time, but if it's consistent with SuperMac's product line, expect the ThunderBolt with ThunderDTP and

monitor, to eliminate any hardware influence on the test results. Additionally, we set all the accelerated-video cards — except the CalComp ChromaVision QuickPlus, which operates only at 1,152 x 870 pixels — to a 1,024-x-768-pixel resolution.

For our control, we chose the Generation Systems Designer 24 as a representative unaccelerated-8/24-bit-color card. We also tried a Fusion Data Systems TokaMac ci to discover

what could be gained from a CPU accelerator. The TokaMac ci uses a 68040 processor operating at 25 megahertz to boost CPU performance.

Publishing professionals who manipulate text and graphics all day long will appreciate the snappiness provided by an accelerated-video card. We discovered this by scrolling through and using the Zoom function on a Photoshop image. At a 50-percent scale, we scrolled through the



The SuperMac ThunderBolt is a RISC-based CPU accelerator that turns a Mac connected to the Thunder/24 accelerated-video card into a high-powered graphics workstation.

ThunderEffects to cost less than \$5,000.

RasterOps is following a similar strategy, with a 40-megahertz LSI 3000 RISC processor on a daughtercard to match its video cards. Although the chip is completely programmable, RasterOps envisions that it will first be used for JPEG (Joint Photographic Experts Group) compression and decompression. It is fast enough to capture QuickTime movies with near-real-time frame rates — 15 frames per second and higher at full-screen resolution.

In addition to integrating higher-powered processors, RasterOps is working on another video-acceleration strategy, one that should prove a boon to people who use their Macs in publishing. The company has developed a proprietary RAMDAC (random-access-memory digital-to-analog converter, the heart of video-card circuitry) — to be available first on the company's ProColor 32 board — that differs significantly from other RAMDACs by incorporating internal circuitry to do CMYK-to-RGB conversions in real time.

This RAMDAC will let you manipulate

images in CMYK mode, which directly corresponds to four-color-process printing. You'll still be able to preview your changes as you make them on an ordinary RGB display without having to stop and spend a minute or more to make a CMYK-to-RGB conversion.

Spectral Innovations has adapted another technology that can be used for Mac image-processing acceleration. Its MacDSP3210 card, based on AT&T's 3210 digital-signal processor chip, can take over image-processing functions, much as a RISC chip can. The 3210 includes its own floating-point unit and excels at vector manipulations. Although the MacDSP3210 can already accelerate the performance of applications such as Photoshop by three to seven times for special-effects filtering and JPEG compression and decompression, its real powers lie in the future. Application vendors are adapting their products to take advantage of the MacDSP3210's 3-D-rendering power. The card will also be able to provide compression and decompression of video and audio under QuickTime.

entire length of the image incrementally by clicking on the down arrow in the vertical scroll bar and holding down the mouse button, a 45-second chore without acceleration. Then we scrolled through the image from beginning to end in one 4-second jump by dragging the scroll box to the bottom of the vertical scroll bar.

The accelerated-video cards improved the rate of incremental scrolling more than the unaccelerated-video

card and the CPU accelerator did. The best was the SuperMac Thunder/24, which was five times as fast as the unaccelerated-video card in 24-bit mode, followed closely by the SuperMac Spectrum/24 PDQ Plus, which was four times as fast. The other accelerated-video cards were two to three times as fast. The speed improvement in scrolling the full length of the image in one jump was more modest — at best about 27 percent,

again with the SuperMac Thunder/24. The TokaMac ci provided no improvement in the one-step scroll and was actually 40 percent slower in the incremental-scroll test.

Word-processing applications also benefit tremendously from an accelerated-video card's scrolling performance. Using Word 4.0, we timed how long it took to scroll through a ten-page text document. Word benefited tremendously from video acceleration — an ironic result, considering that accelerated-video cards are most likely to be used by graphic artists and DTP professionals, not users of word processors. The SuperMac Thunder/24 was more than six times as fast as the unaccelerated-video card in this test, with the SuperMac Spectrum/24 PDQ Plus second, at five times the speed. The other cards were about twice as fast as the control card. (We couldn't include the TokaMac ci in this test, because at the time of our testing, Word 4.0 was incompatible with the 68040 microprocessor.)

Like most drawing programs such as FreeHand, Illustrator, and MacDraw Pro, Canvas uses QuickDraw. However, it still requires the main processor to compute changes to a document before QuickDraw updates the screen, so we weren't surprised to discover that the CPU accelerator was the winner in the Canvas redraw test. We selected all the elements in a complex test document and then shifted the entire collection left by 1 pixel, thereby causing the image to be redrawn. The redraw took 20 seconds without acceleration. The CPU accelerator increased the redraw speed by more than 50 percent. The accelerated-video cards did not help at all.

We performed a zoom test on a PageMaker document composed of text and a color image, pulling back from a 400-percent view to a 100-percent one. After timing the first iteration of this operation, we zoomed back to 400 percent. Then we zoomed the screen back to 100 percent again in order to time the effect of any image buffering or other technique used

by the various accelerators that would speed up subsequent redraws.

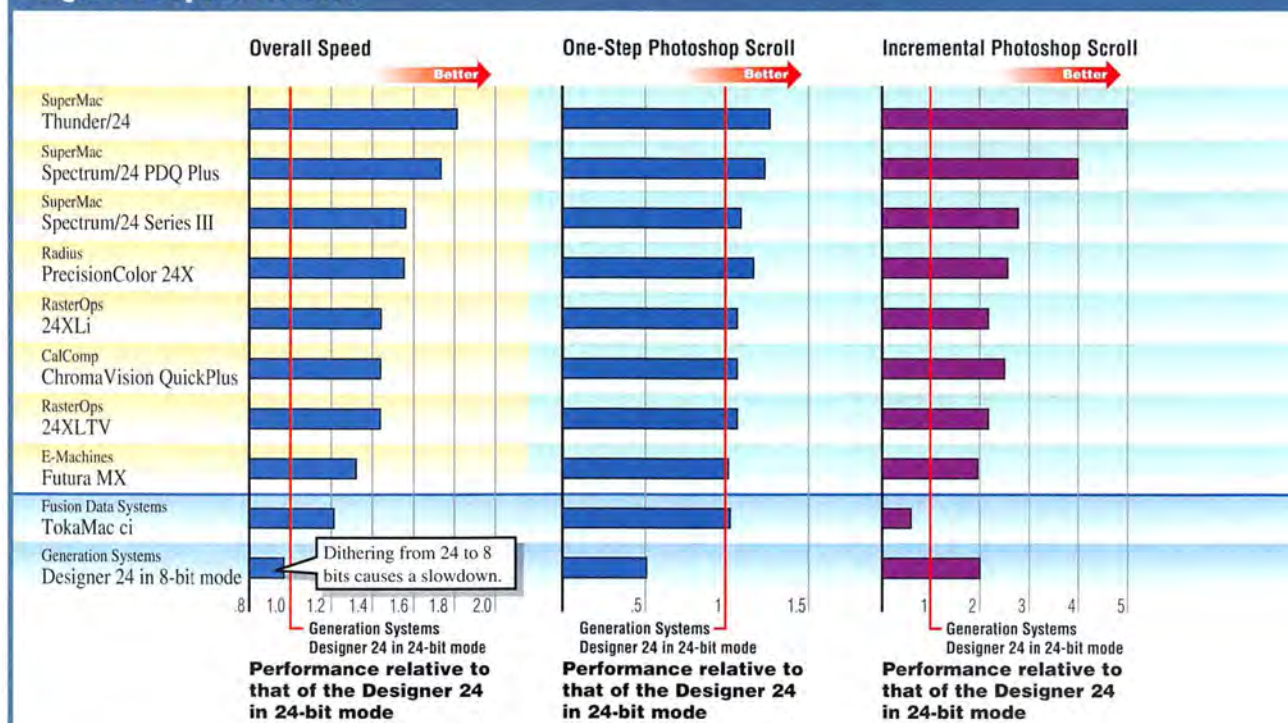
The initial zoom out was handled best by the TokaMac ci CPU accelerator, which redrew the screen nearly two and a half times as fast as the unaccelerated-video card did. The fastest accelerated-video card in this test, the Radius PrecisionColor 24X, almost doubled the zooming speed. On the other hand, the E-Machines Futura MX was slower than the Designer 24. On the second zoom, however, it pulled up to third place behind the

SuperMac Thunder/24 and the Spectrum/24 PDQ Plus. The CPU accelerator produced about the same performance gain as in the first zoom, and the Radius and the RasterOps accelerated-video cards were actually slower in the second zoom test than they had been in the first. The CalComp ChromaVision QuickPlus was unable to run these tests, because our test document was incompatible with its screen size.

We evaluated the effect of on-board GWorld RAM by running all the tests

on the two products that offered it, both with the GWorld RAM switched on and with it switched off. No performance difference was discernible on any of the tests. The primary reason is that our tests — and most current applications — make little use of GWorld memory. Although PageMaker 4.0 employs the QuickDraw GWorld commands and the System 7 Finder takes advantage of GWorld to manage memory when shifting among applications, any pronounced performance advantage to be gained from

Figure 1: Speed Results



moving GWorld from system RAM to an accelerator card apparently lies in the future.

Fastest for Your Dollar

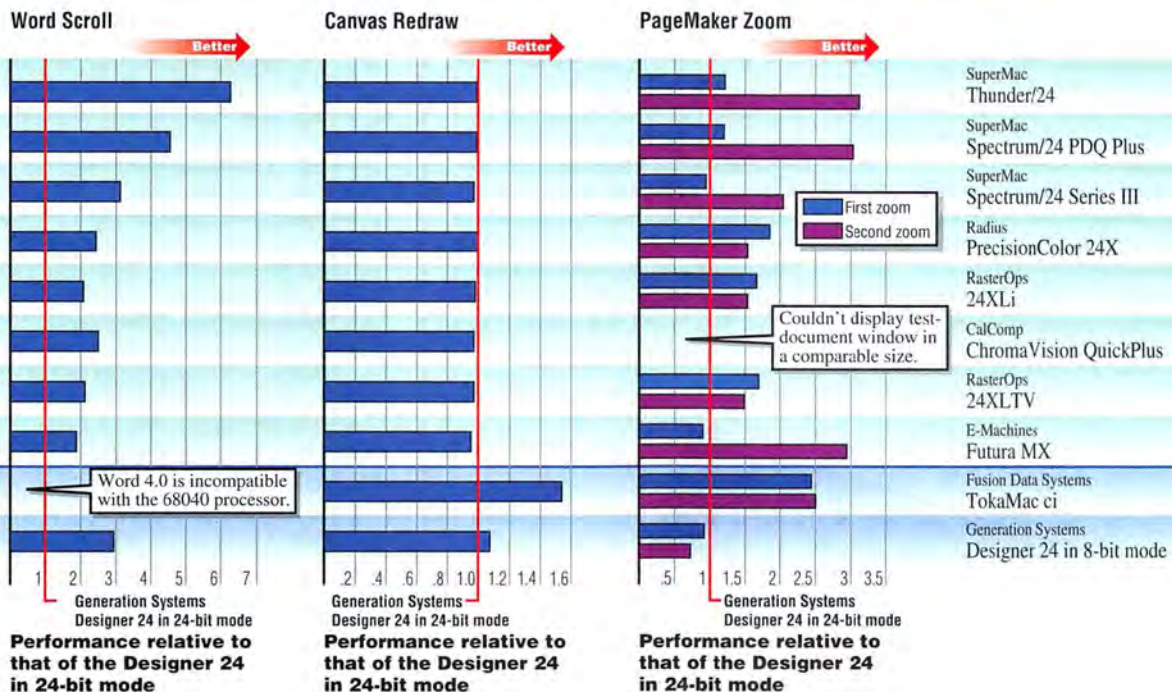
Finding the right accelerator requires that you find the best fit among the specific products, the applications you want to speed up, and your budget. Besides matching a video accelerator with software that can best take advantage of its power, you also need to ensure that the card you choose will work with your monitor. If you want

to be sure of a perfect match, you can buy any of these accelerators as part of a combination video-board-and-monitor system (for example, the CalComp ChromaVision QuickPlus is available only with a matching monitor). Alternatively, you can shop separately for a compatible monitor (see Table 2). Most of the accelerated-video cards support several monitor resolutions and scan rates, or timings, meaning that you can buy an inexpensive auto-synchronous monitor to get started and later move up to

a larger, more expensive display.

Note that you need to match timings as well as resolution. Some cards make this easy. For example, during installation the SuperMac products cycle through their various resolutions and timings and you simply press a button when you see a clear image. The E-Machines Futura MX requires you to select timings with a special plastic tool, which is not shipped with the board!

After reading this report, do you still want to buy a video accelerator?



Word Scroll:

To see if Word users stand to gain anything from video acceleration, we scrolled through a ten-page text document and found that the SuperMac Thunder/24 was more than six times as fast as the Designer 24. The SuperMac Spectrum/24 PDQ Plus came in a close second, and all the other cards were about twice as fast as the unaccelerated card. As 24-bit color seems a waste for Word users, we ran the same test on the Designer 24 in 8-bit mode and found that it was nearly three times as fast as in 24-bit mode, beating the majority of the accelerated-24-bit-color cards. We could not run the test with the TokaMac ci, because Word 4.0 is incompatible with the TokaMac ci's 68040 processor.

Canvas Redraw:

We were surprised to find that the accelerated-video cards did nothing to speed up a Canvas redraw. The one product that really helped in this task was the TokaMac ci, proving that this task was primarily a compute-intensive one, a task for which video accelerators are not well suited.

PageMaker Zoom:

Finally, we zoomed out to a 100-percent view from a 400-percent view of a PageMaker document consisting of text and a 24-bit-color image. We then repeated the same test to see if the cards were caching any of the video data. All the accelerated-video cards, with the exception of the Radius PrecisionColor 24X and the two RasterOps cards, performed the second zoom much faster than they did the first. The Designer 24 card was slower in 8-bit mode than it was in 24-bit mode because the 24-bit graphic had to be dithered for the 8-bit display.

The Bottom Line

True-color (24-bit) video is slow on the draw. To speed it up, you need an accelerated-video card. But if you're looking for an enormous savings in the time you spend waiting for your computer to finish an entire task, you may be disappointed. If you're just looking for something to speed up your screen's response time to reduce your frustration at having to wait for it to be updated, an accelerated-video card may be just the ticket.

The fastest card we tested was more than six times as fast as an unaccelerated-video card in 24-bit mode when scrolling through a Word document and was five times as fast with Photoshop. However, an unaccelerated-video card in 8-bit mode proved to be almost as fast as the accelerated-24-bit-color cards in most tests. If cost is an issue and 24-bit color isn't, save yourself a big chunk of dough and stick with an 8-bit system.

For those who want the best-performing accelerated-video card and don't mind paying for it, the **SuperMac Thunder/24** (\$3,499 list, \$3,149 street) proved itself far and away the leader — sometimes more than twice as fast as the accelerators from the other companies. It's also upgradable

to SuperMac's ThunderBolt, which will be released soon; ThunderBolt promises to open up a whole new world of acceleration for publishing, graphics, and digital-video professionals.

If price is a major issue, your best choice is the **Radius PrecisionColor 24X** (\$1,999 list, \$1,668 street). It missed being least expensive by a mere \$4, and it consistently delivered performance as good as or better than that of the other non-SuperMac products. Although it's not a particularly good match for PageMaker, it accelerated incremental scrolling of other programs by a factor of 2 to 3.

CPU acceleration made a noticeable difference to display speed in many of our tests, particularly for generating and redrawing images. For those who create and view rather than scroll around, a CPU accelerator may improve the Mac's on-screen performance more dramatically than a dedicated video accelerator does.

If, however, you want the best possible display speed and cost is no object, take advantage of both strategies. Add both a CPU accelerator and a graphics accelerator to your Mac. You'll make yourself (and probably two manufacturers) happy.



The SuperMac Thunder/24 (above) was the fastest board we tested. The Radius PrecisionColor 24X offered the best price/performance value.



Accelerated-video cards are expensive, but they can overcome some of the waiting caused by your Macintosh's CPU as it processes raw video data and tries to squeeze this data through NuBus bottlenecks. Accelerated-video cards do make your screen snappier. But to get that Photoshop filter to go any faster, you still need a fast CPU or a CPU accelerator or one of a new class of accelerator products discussed in the "On the Horizon" sidebar.

Winn L. Rosch offers all-purpose computer knowledge in *The Winn Rosch Hardware Bible*.

Table 1 Criteria

List price — The manufacturer's suggested retail price.

Street price — The average actual price charged by a sample of dealers around the U.S. in November 1991.

Maximum power draw — The maximum amount of power the card requires, in watts.

Supported bit depths — The number of bits per pixel the card can support.

Supported resolutions — The number of pixels that can be displayed (horizontally x vertically).

NTSC or PAL output — Does the card let you output to analog monitors? NTSC is the U.S. analog standard, and PAL is the European analog standard.

Bundled software — The software that's shipped with the card.

Hardware features — Effects, such as panning and zooming, that the card offers.

GWorld RAM — The number of slots provided for attaching GWorld SIMMs and the maximum amount of RAM, in megabytes.

Type/speed of SIMMs — The type of RAM SIMMs the card can accommodate and their speed, in nanoseconds.

Block transfers — Does the card support NuBus block-mode transfers?

Resolution switching — Does the card let you change resolutions without having to reboot?

Adapter for Mac IIx — Is an adapter card for the Mac IIx shipped with the board?

Because The World Isn't Flat



And It Isn't Grey Either

Chinon's Color/B&W
Scanner Can Scan
3-Dimensional Objects.
For Under \$1,000!



We live in a colorful, 3-dimensional world. Now you can scan it all – all the colors, all the dimensions. Scan books or objects up to an inch high. Scan in color or black-and-white. No other scanner can do all this.

With OCR software you can input text without retyping it. With a simple add-in card, turn your computer into a full-featured fax. And DS-3000 will scan almost any type of graphic image, so it's perfect for desktop publishing. Whatever your application, we've bundled full-featured, brand-name software with our scanner so it's easy for you to get started.

DS-3000 is available for IBM and compatibles or Macintosh computers. Call Toll-Free for the Chinon reseller nearest you – and start scanning the real world.

CHINON

Chinon America, Inc., 660 Maple Avenue, Torrance, CA 90503




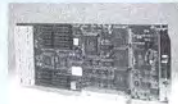
Toll-Free (800) 441-0222

In California (310) 533-0274 Fax: (310) 533-1727

IBM is a registered trademark of International Business Machines Corporation. Macintosh is a registered trademark of Apple Computer, Inc.

CIRCLE 39 ON READER SERVICE CARD.

Table 1: Features of Video Accelerators

				
● = yes ○ = no	CalComp ChromaVision QuickPlus \$\$\$½	E-Machines Futura MX \$\$\$½	Radius PrecisionColor 24X \$\$\$½	RasterOps 24XLi \$\$\$½
List price	\$4,995	\$1,995	\$1,999	\$2,499
Street price	\$4,995	\$1,448	\$1,668	\$1,950
Pros		Supports 38 virtual-screen sizes. Five-year warranty.	Lets you change resolutions on the fly.	On-board RAM disk. Hardware pan and zoom.
Cons	Card not sold separately. No support for 16-bit color. High power consumption. Supports only one resolution.	Mechanical switch to change timings. Accelerated scrolling only.	One-year warranty.	Expensive. To take advantage of 10-MB RAM disk, you must install 16 MB of RAM.
Features				
Maximum power draw	9.5 watts	5 watts	9 watts	8 watts
Supported bit depths	1, 2, 4, 8, 24	1, 2, 4, 8, 16, 24	1, 2, 4, 8, 16, 24	1, 2, 4, 8, 16, 24
Supported resolutions	1,152 x 870	640 x 480, 800 x 600, 832 x 624, 1,024 x 768	560 x 760, 640 x 480, 640 x 870, 800 x 600, 1,024 x 768, 1,152 x 870, 1,152 x 882	640 x 480, 800 x 600, 1,024 x 768, 1,152 x 870
NTSC or PAL output	no	yes (via adapter)	no	yes*
Utility software	CalComp control panel	E-Machines control panel 3.3	RadiusWare 2.02	RasterOps Accelerator, Monitor Extension
Bundled software	On-Display template	none	none	none
Hardware features		200-percent hardware zoom, panning, 38 virtual-screen sizes		pan, zoom, and extended desktop†
GWorld RAM	none	none	none	4 slots, 10 MB maximum§
Type/speed of SIMMs	none	none	none	standard SIMMs, 80 ns or faster
Block transfers	○	●	●	●
Resolution switching	○	●	●	○
Adapter for Mac IIsi	○	○	on request	○
Other				
Warranty	2 years	5 years	1 year	3 years
Money-back guarantee	none	through dealer	none	none
Company	CalComp, Inc. 65 River Rd. CS908 Hudson, NH 03051 (800) 225-0065 (603) 885-8855	E-Machines, Inc. 9305 S.W. Gemini Dr. Beaverton, OR 97005 (800) 344-7274 (503) 646-6699	Radius, Inc. 1710 Fortune Dr. San Jose, CA 95131 (800) 227-2795 (408) 434-1010	RasterOps, Inc. 2500 Walsh Ave. Santa Clara, CA 95051 (800) 729-2656 (408) 562-4200

*In 8-bit 640-x-480-pixel interlaced monochrome mode only. Color output requires a RasterOps Video Expander.

†On-board SIMM slots can also be configured as a RAM disk.

§All SIMMs must have the same capacity, and all four slots must be used.

"Brilliant"

The user-installable Accel-a-Writer™ controller from Xante® is literally an art director's dream come true. This ground-breaking technological value installs in any Apple® LaserWriter® in minutes to deliver true 600 x 600 dpi typeset-quality text and 850 x 850 dpi gray scales. That means you'll have 197 gray levels instead of the 25 you're limited to at 300 dpi! You'll enjoy clear, crisp graphics, scanned images and halftones that are simply the best available from any laser printer on the market today. What's more, the Accel-a-Writer's RISC processor delivers this superior output up to 12 times faster than your current laser printer!

You'll enjoy other important advantages, too. Like 35 resident fonts. Expanded connectivity for simultaneous operation of Apple Macintosh®, IBM®/compatibles and other popular workstations. A SCSI port to easily attach external hard drives for permanent storage of downloadable fonts. And Advanced Memory Management that automatically allocates the Accel-a-Writer's memory to increase resolution, virtual memory or font caching as needed.

Call Xante toll-free to order your Accel-a-Writer now, (there's one for every Apple LaserWriter & most HP® LaserJets®) and give your printer capabilities most art directors only dream about.

**What makes your
LaserWriter
12 times faster,
gives it 4 times the
resolution and
twice the
connectivity?**



Accel-a-Writer I

Original LaserWriter & LaserWriter Plus

Accel-a-Writer II

LaserWriter IISC, LaserWriter IINT & LaserWriter II NTX

Accel-a-Writer III

Personal LaserWriter SC & Personal LaserWriter NT

Accel-a-Writer IX

Personal LaserWriter LS

1-800-926-8839

FAX 205-476-9421



XANTE



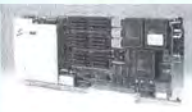

Innovations In Output



FEATURES	ALL APPLE LASERWRITERS without Accel-a-Writer	with Accel-a-Writer
PostScript® Compatibility	✓	✗
True 600 x 600 dpi		✗
RISC Processor		✗
Standard 6MB RAM		✗
SCSI Connectivity	✓(Only on NTX, III, Isg)	✗
Simultaneous Interfacing (AppleTalk®, serial, parallel)		✗
Dual Page Processing		✗
Advanced Memory Management		✗

**Free
Video Tape
With Order!**
"How to
Install your
Accel-a-Writer
Fast and
Easy."

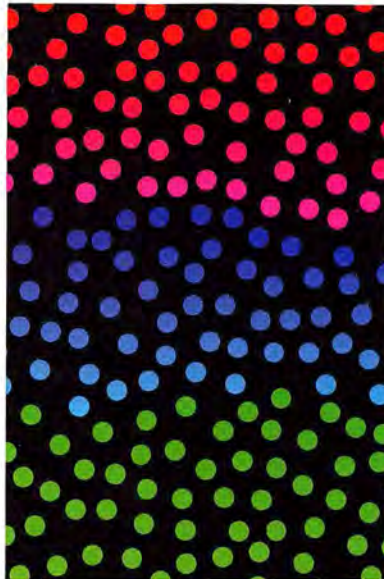
Table 1: Features of Video Accelerators, continued

				
● = yes ○ = no	RasterOps 24XLTV \$\$\$	SuperMac Spectrum/24 PDQ Plus \$\$\$½	SuperMac Spectrum/24 Series III \$\$\$½	SuperMac Thunder/24 \$\$\$\$
List price	\$2,999	\$2,399	\$1,699	\$3,499
Street price	\$2,585	\$2,149	\$1,499	\$3,149
Pros	Hardware pan and zoom. Many virtual-screen sizes supported. Includes NTSC, PAL, and SECAM capture and display.	Good performance. Five-year warranty. Hardware pan and zoom. Lets you change resolution on the fly.	Good performance. Five-year warranty. Lets you change resolution on the fly. Hardware pan and zoom.	Fastest performer. Five-year warranty. Hardware pan and zoom.
Cons	Expensive. Highest power requirements.	No support for 16-bit color.	High power consumption. No support for 16-bit color. Supports only three resolutions.	Expensive. High power consumption. No support for 16-bit color.
Features				
Maximum power draw	19.5 watts	10 watts	18.75 watts	14.65 watts
Supported bit depths	1, 2, 4, 8, 16, 24	1, 2, 4, 8, 24	1, 2, 4, 8, 24	1, 2, 4, 8, 24
Supported resolutions	640 x 480, 800 x 600, 1,024 x 768, 1,152 x 870	512 x 384, 640 x 480, 768 x 576, 832 x 624, 1,024 x 768, 1,152 x 870	640 x 480, 832 x 624, 1,024 x 768	512 x 384, 640 x 480, 768 x 576, 832 x 624, 1,024 x 768, 1,152 x 870
NTSC or PAL output	yes*	yes ^o	yes ^o	yes ^o
Utility software	Accelerator control panel, MediaGrabber, Graphic System Software	SuperMatch Software with TekColor, SuperVideo 2.48	SuperMatch Software with TekColor, SuperVideo 2.48	SuperMatch Software with TekColor, SuperVideo 2.48
Bundled software	none	none	none	none
Hardware features	pan, zoom, extended desktop, video capture	hardware pan and zoom, 4 virtual-desktop sizes	hardware pan and zoom, 4 virtual-desktop sizes	pan, zoom, and extended desktop**
GWorld RAM	none	none	none	4 slots, 8 MB maximum
Type/speed of SIMMs	none	none	none	GWorld SIMMs, 80 ns or faster
Block transfers	●	●	○	●
Resolution switching	○	●	●	●
Adapter for Mac IIx	○	○	cannot be used with IIx	○
Other				
Warranty	3 years	5 years	5 years	5 years
Money-back guarantee	none	30 days, through dealer	30 days, through dealer	30 days, through dealer
Company	RasterOps, Inc. 2500 Walsh Ave. Santa Clara, CA 95051 (800) 729-2656 (408) 562-4200	SuperMac Technology 485 Potrero Ave. Sunnyvale, CA 94086 (800) 334-3005 (408) 245-2202	SuperMac Technology 485 Potrero Ave. Sunnyvale, CA 94086 (800) 334-3005 (408) 245-2202	SuperMac Technology 485 Potrero Ave. Sunnyvale, CA 94086 (800) 334-3005 (408) 245-2202

*In 8-bit 640-x-480-pixel interlaced monochrome mode only. Color output requires a RasterOps Video Expander.

^oNTSC and PAL output in analog RGB mode only; \$399 option.

**100-pin OpenSlot connector supports future expansion.



Introducing a few surprises you won't find in other \$2,000 scanners.

There are certain things you'd expect from a 600 dpi color scanner. Rapid speed. A choice of 24-bit color or 256 shades of gray. Exceptional optical quality.

But nothing you've learned about other scanners will have prepared you for the new UC630, by UMAX®.

The items above are a good example.

The lamp: There's one inside the UC630. Only one. Most scanners have three. And because each of those three lamps wears out at different rates, next month's scans may be weaker in reds than today's. A couple months later, it might be the greens that suffer.



The UMAX Transparency advantages are clear!



Get the optimum accuracy with the new UMAX Transparency unit. Compatible with all UMAX scanners.

Eventually, our single lamp wears out, too. That's unavoidable. But thanks to our auto-calibration, you'll never have to put up with off-color scans.

The dots: The UC630 prints 600 of them to an inch. Other vendors choose to sell 300 dpi scanners that use software to bump the resolution up to 600 dpi. The software manipulation works, but the image quality is perceptibly less than from a 600 dpi machine. Like ours.

And finally, what about those feet? A reference to UMAX's brutal drop test: We

pick up a UC630 (in its original box), and drop it. Three feet down. And what happens next? It works. The optical mirror even realigns itself automatically.

Look, we're already out of space and haven't even touched on the UC630's speed (up to 60% faster than others), optical precision (a system given top marks by *MacUser* and *MacWorld*), or dynamic range (accurate readings of 16.8 million colors, and all 256 shades of gray). Not to mention our 24-hour turnaround for repairs, and the free Adobe Photoshop™ we include with every UC630.

So do us both a favor: Call 800-562-0311 for your nearby UMAX dealer, and come take a look.

You'll see we've kept a few other surprises for your visit.

UMAX®
Maximize your image.™

3170 Coronado Blvd., Santa Clara, CA 95054
408-982-0771; 408-982-0776 (fax)

©1992 UMAX Technologies, Inc. UMAX is a registered trademark of UMAX Data Systems, Inc. "Maximize your image" is a trademark of UMAX Technologies, Inc. Other company names and product names are trademarks of their respective companies.

CIRCLE 246 ON READER SERVICE CARD.

Table 2: Compatible Monitors

● = accelerated-video-card/monitor compatibility	CalComp ChromaVision QuickPlus	E-Machines Futura MX*	Radius PrecisionColor 24X	RasterOps 24XLTV
Monitor (resolution and timing)				
Apple Macintosh 16" Color Display (832 x 624 @ 75 Hz)		●		
Apple Macintosh 21" Color Display (1,152 x 870 @ 75 Hz)	●		●	●
AppleColor 12" High Resolution RGB Monitor (512 x 384 @ 60 Hz)				
AppleColor 13" High Resolution RGB Monitor (640 x 480 @ 67 Hz)		●	●	●
E-Machines ColorPage E16 (640 x 480 @ 67 Hz)		●	●	●
E-Machines ColorPage E16, T16 II (1,024 x 768 @ 75 Hz) s		●	●	
E-Machines ColorPage E16, T16, T16 II (832 x 624 @ 75 Hz)		●		
E-Machines T19, TX (1,024 x 808 @ 71 Hz)		●		
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (1,024 x 768 @ 60 Hz) r				●
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (1,024 x 768 @ 60 Hz) s			●	●
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (512 x 384 @ 60 Hz)				
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (640 x 480 @ 60 Hz)		●		
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (640 x 480 @ 67 Hz)		●	●	●
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (640 x 480 @ 75 Hz)			●	
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (768 x 576 @ 50 Hz)				
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (800 x 600 @ 60 Hz)		●		
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (800 x 600 @ 67 Hz)				●
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (800 x 600 @ 72 Hz)			●	
NEC MultiSync 4FG, 5FG, 6FG (1,024 x 808 @ 71 Hz)		●		
NEC MultiSync 4FG, 5FG, 6FG (1,152 x 870 @ 75 Hz)	●		●	●
NEC MultiSync 4FG, 5FG, 6FG (832 x 624 @ 75 Hz)		●		
NEC MultiSync 5FG, 6FG (1,024 x 768 @ 75 Hz) r		●	●	●
NEC MultiSync 5FG, 6FG (1,024 x 768 @ 75 Hz) s		●	●	
NEC MultiSync 5FG, 6FG (560 x 760 @ 72 Hz)			●	
NEC MultiSync 5FG, 6FG (640 x 870 @ 75 Hz)			●	
PAL RGB (768 x 576 @ 50 Hz)				
Radius 21" Color Display 0348 (1,152 x 870 @ 75 Hz)	●		●	●
Radius Color Pivot (560 x 760 @ 72 Hz)			●	
Radius Color Pivot (640 x 870 @ 75 Hz)			●	
Radius PrecisionColor Display/19 (512 x 384 @ 60 Hz)				
Radius PrecisionColor Display/19, Display/20 (1,024 x 768 @ 75 Hz) s		●	●	
Radius PrecisionColor Display/20 (1,152 x 870 @ 75 Hz)	●		●	●
Radius PrecisionColor Display/20 (640 x 480 @ 75 Hz)			●	
RasterOps 19" Trinitron (1,024 x 768 @ 60 Hz) r				●
RasterOps 19" Trinitron (1,024 x 768 @ 75 Hz) r		●	●	●
RasterOps 19" Trinitron (1,152 x 870 @ 75 Hz)	●		●	●
RasterOps 21" Hitachi (1,152 x 870 @ 75 Hz)	●		●	●
Super VGA (800 x 600 @ 60 Hz)		●		
Super VGA (800 x 600 @ 67 Hz)				●
Super VGA High Refresh (800 x 600 @ 72 Hz)			●	
SuperMac 19" (1,024 x 768 @ 60 Hz) s			●	●
SuperMac 19" (1,024 x 768 @ 75 Hz) s		●	●	
SuperMac 19" Dual-Mode Trinitron (1,152 x 870 @ 75 Hz)	●		●	●
SuperMac 20" Dual-Mode Trinitron (1,024 x 768 @ 75 Hz) s		●	●	
SuperMac 21" SuperMatch Two-Page Color (1,152 x 870 @ 75 Hz)	●		●	●
SuperMac SuperMatch 17 (1,024 x 768 @ 60 Hz) r				●
SuperMac SuperMatch 17 (1,024 x 768 @ 60 Hz) s			●	●
SuperMac SuperMatch 17 (1,024 x 768 @ 75 Hz) r		●	●	●
SuperMac SuperMatch 17 (1,024 x 768 @ 75 Hz) s		●	●	
SuperMac SuperMatch 17 (640 x 480 @ 60 Hz)		●		
SuperMac SuperMatch 17 (640 x 480 @ 67 Hz)		●	●	●
SuperMac SuperMatch 17 (640 x 480 @ 75 Hz)			●	
SuperMac SuperMatch 17 (800 x 600 @ 60 Hz)		●		
SuperMac SuperMatch 17 (800 x 600 @ 67 Hz)				●
SuperMac SuperMatch 17 (800 x 600 @ 72 Hz)			●	
SuperMac SuperMatch 17 (832 x 624 @ 75 Hz)		●		
SuperMac SuperMatch 20 Color (1,024 x 768 @ 75 Hz) s		●	●	
VGA (640 x 480 @ 60 Hz)		●		
VGA High Refresh (640 x 480 @ 75 Hz)			●	

r = RasterOps' version of this resolution and timing

s = SuperMac's version of this resolution and timing

* The E-Machines Futura MX card supports third-party displays via a separate cable.



AGFA PUTS A NEW SPIN ON CD-ROM—ADOBE® POSTSCRIPT® FONTS, TRUEType™ FONTS, AND MORE.

The latest twist on fonts is the AgfaType™ CD-ROM V3.0. It's what type on CD should be—the widest selection of fonts and typographic software plus a powerful set of *free* features.

Agfa made the new CD with the type-savvy user in mind. You can choose fonts in the format you want—POSTSCRIPT from Adobe® or TrueType from Apple®

And, we've added the features that you've asked for—features found only on the AgfaType CD-ROM. Your fonts come packed with an on-line electronic catalogue, a new multimedia typography tutorial, the complete collection of screen fonts, the latest shareware, and future upgrades—*free*.

The new interface lets you browse, learn about, select, and then quickly install additional fonts. Choose individual typefaces. There's no waiting for a shipment to arrive—your fonts can be added in minutes with a simple phone call.

Agfa believes that type on CD should give you more choices, more features, *and* more value. To help convince you, we've included Garth Graphic® a classic typeface, absolutely *free*.

Nothing in the industry can compare with the AgfaType™ CD-ROM V3.0. To take it for a spin, call us today at 1-800-424-TYPE.



\$99

Get the AgfaType CD-ROM V3.0 with 20 exclusive Agfa headline faces unlocked plus a Pi and Symbols font of your choice. An \$830 retail value.

TC Jasper
Metropolis
Modern Twenty
ORLANDO
Quirinus Bold
Seina Black
SECTION BOLD CONDENSED
Stratford Bold
PL Tower Condensed
PL Westervelt
WOODBLOCK

PL Behemoth
Semi-Condensed

PL Benguiat Frisky
Beton Extra Bold

Bernhard Modern

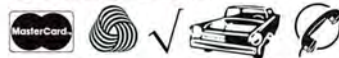
PL Davison
Americana

Egiziano Black

TC Europa Bold

PL Futura Maxi Light

PL Futura Maxi Demi



Choose from 126 exclusive Agfa Pi and Symbols fonts.

HOW DOES THE AGFATYPE CD-ROM V3.0 STACK UP?

(As of July 1, 1991)

	AGFA	ADOBE	NEC
PostScript Fonts	1,900+	1,000+	1,000+
Pi and Symbol Fonts.....	145	19	19
TrueType Fonts	Yes	No	No
Multimedia Type Tutorial	Free	None	None
Electronic Catalog.....	Free	None	None
Type Applications	Yes	No	No
Shareware.....	Yes	No	No
Upgrades	Free	?	?



\$695

Get a Toshiba TXM3301 drive, the AgfaType CD-ROM with 20 Agfa headline faces unlocked, plus a Pi and Symbols font. A \$1,920 value.

Call Agfa for details or the authorized Agfa dealer near you (prices listed are for USA only).

1-800-424-TYPE

AGFA

This ad was designed and produced on an Agfa SelectSet 5000. Agfa and the Agfa Rhombus are registered trademarks and AgfaType is a trademark of Agfa-Gevaert AG. Adobe, PostScript and ATM are registered trademarks of Adobe Systems Incorporated. Apple and Macintosh are registered trademarks and TrueType is a trademark of Apple Computer, Inc. Toshiba is a registered trademark of Toshiba America Information Systems, Inc. All other trademarked names are property of their respective holders.

Table 2: Compatible Monitors, continued

● = accelerated-video-card/monitor compatibility	RasterOps 24XLi	SuperMac Thunder/24	SuperMac Spectrum/24 PDQ Plus	SuperMac Spectrum/24 Series III
Monitor (resolution and timing)				
Apple Macintosh 16" Color Display (832 x 624 @ 75 Hz)		●	●	●
Apple Macintosh 21" Color Display (1,152 x 870 @ 75 Hz)	●	●	●	
AppleColor 12" High Resolution RGB Monitor (512 x 384 @ 60 Hz)		●	●	
AppleColor 13" High Resolution RGB Monitor (640 x 480 @ 67 Hz)	●	●	●	●
E-Machines ColorPage E16 (640 x 480 @ 67 Hz)	●	●	●	●
E-Machines ColorPage E16, T16 II (1,024 x 768 @ 75 Hz) s		●	●	●
E-Machines ColorPage E16, T16, T16 II (832 x 624 @ 75 Hz)		●	●	●
E-Machines T19, TX (1,024 x 808 @ 71 Hz)				
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (1,024 x 768 @ 60 Hz) r	●	●	●	●
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (1,024 x 768 @ 60 Hz) s	●	●	●	●
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (512 x 384 @ 60 Hz)		●	●	
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (640 x 480 @ 67 Hz)	●	●	●	●
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (768 x 576 @ 50 Hz)		●	●	
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (800 x 600 @ 67 Hz)	●			
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (640 x 480 @ 60 Hz)				
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (640 x 480 @ 75 Hz)				
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (800 x 600 @ 60 Hz)				
NEC MultiSync 3FGx, 4FG, 5FG, 6FG (800 x 600 @ 72 Hz)				
NEC MultiSync 4FG, 5FG, 6FG (1,024 x 808 @ 71 Hz)				
NEC MultiSync 4FG, 5FG, 6FG (1,152 x 870 @ 75 Hz)	●	●	●	
NEC MultiSync 4FG, 5FG, 6FG (832 x 624 @ 75 Hz)		●	●	●
NEC MultiSync 5FG, 6FG (1,024 x 768 @ 75 Hz) r	●	●	●	●
NEC MultiSync 5FG, 6FG (1,024 x 768 @ 75 Hz) s		●	●	●
NEC MultiSync 5FG, 6FG (560 x 760 @ 72 Hz)				
NEC MultiSync 5FG, 6FG (640 x 870 @ 75 Hz)				
PAL RGB (768 x 576 @ 50 Hz)		●	●	
Radius 21" Color Display 0348 (1,152 x 870 @ 75 Hz)	●	●	●	
Radius Color Pivot (560 x 760 @ 72 Hz)				
Radius Color Pivot (640 x 870 @ 75 Hz)				
Radius PrecisionColor Display/19 (512 x 384 @ 60 Hz)		●	●	
Radius PrecisionColor Display/19, Display/20 (1,024 x 768 @ 75 Hz) s		●	●	●
Radius PrecisionColor Display/20 (1,152 x 870 @ 75 Hz)	●	●	●	
Radius PrecisionColor Display/20 (640 x 480 @ 75 Hz)				
RasterOps 19" Trinitron (1,152 x 870 @ 75 Hz)	●	●	●	
RasterOps 19" Trinitron (1,024 x 768 @ 60 Hz) r	●	●	●	●
RasterOps 19" Trinitron (1,024 x 768 @ 75 Hz) r	●	●	●	●
RasterOps 21" Hitachi (1,152 x 870 @ 75 Hz)	●	●	●	
Super VGA (800 x 600 @ 60 Hz)				
Super VGA (800 x 600 @ 67 Hz)	●			
Super VGA High Refresh (800 x 600 @ 72 Hz)				
SuperMac 19" (1,024 x 768 @ 60 Hz) s	●	●	●	●
SuperMac 19" (1,024 x 768 @ 75 Hz) s		●	●	●
SuperMac 19" Dual-Mode Trinitron (1,152 x 870 @ 75 Hz)	●	●	●	
SuperMac 20" Dual-Mode Trinitron (1,024 x 768 @ 75 Hz) s		●	●	●
SuperMac 21" SuperMatch Two-Page Color (1,152 x 870 @ 75 Hz)	●	●	●	
SuperMac SuperMatch 17 (640 x 480 @ 60 Hz)				
SuperMac SuperMatch 17 (1,024 x 768 @ 75 Hz) r	●	●	●	●
SuperMac SuperMatch 17 (640 x 480 @ 67 Hz)	●	●	●	●
SuperMac SuperMatch 17 (1,024 x 768 @ 60 Hz) r	●	●	●	●
SuperMac SuperMatch 17 (1,024 x 768 @ 60 Hz) s	●	●	●	●
SuperMac SuperMatch 17 (1,024 x 768 @ 75 Hz) s		●	●	●
SuperMac SuperMatch 17 (640 x 480 @ 75 Hz)				
SuperMac SuperMatch 17 (800 x 600 @ 60 Hz)				
SuperMac SuperMatch 17 (800 x 600 @ 67 Hz)	●			
SuperMac SuperMatch 17 (800 x 600 @ 72 Hz)				
SuperMac SuperMatch 17 (832 x 624 @ 75 Hz)		●	●	●
SuperMac SuperMatch 20 Color (1,024 x 768 @ 75 Hz) s		●	●	●
VGA (640 x 480 @ 60 Hz)				
VGA High Refresh (640 x 480 @ 75 Hz)				

r = RasterOps' version of this resolution and timing

s = SuperMac's version of this resolution and timing

COLORFAST. THE PROFESSIONAL FILM RECORDER WITH A PERSONAL PRICE.



Now, you can produce your own professional-quality overhead transparencies, 35mm color slides, and prints, right at your desk. Without the high cost or long turnaround time associated with service bureaus. All it takes is your color-equipped Macintosh® and ColorFast™, the full-featured digital film recorder from GCC Technologies®.

As Easy As "Print."

It's easy to create dazzling presentations with ColorFast. Simply design your slides on a color Macintosh using your favorite presentation software, like Microsoft® PowerPoint™ or Aldus® Persuasion™, and select "Print." ColorFast does the rest. In minutes your image is recorded on film, with brilliant color accuracy.

ColorFast not only saves you time, it saves you money. With ColorFast your production cost is only 75¢ per 35mm slide. The average service bureau charges you about \$12 per 35mm slide. Produce just two rolls of film per month, and your

ColorFast pays for itself in less than one year.

Incredible Quality, Fast.

ColorFast uses the newest technology from Polaroid®, the undisputed leader in digital film recording. This results in incredible colors, generated by 33-bit (11 bits per color) pixel recording. To that we've added our own imaging software, so you get true "Professional-quality," at a full 4K resolution. There's also a faster "High-quality," 2K resolution and a quick 1K "Draft" mode. You can even use our Enhanced Color Resolution™ software option to get 4K results at 2K speed.

And because the typical business slide takes only two minutes, what you see on your Macintosh can be on the presentation screen almost instantly. Which means you can make those last minute decisions and changes without sacrificing the quality of your presentation. Or a major chunk of your budget.

Even with all it does, perhaps the

most amazing thing about ColorFast is its price: just \$5,999. This includes everything: film recorder, 35mm and Pack Film Camera adapters, instant 35mm slide processor, overhead enlarger, software, sample film, Microsoft PowerPoint demo disk, slide mounts, cables, and a two year warranty.



Dealer Or Direct.

Call 800-422-7777, extension 645, for details on ColorFast. We'll also give you the name of your nearest GCC Technologies dealer, or you can purchase your ColorFast directly from us. Order ColorFast today and start creating more professional presentations, in your office, tomorrow.

800-422-7777, ext. 645.



**GCC
TECHNOLOGIES**
Peripherals With Vision™



© 1992 GCC Technologies, Inc. GCC dealers are independent businesses and as such they may offer different prices, policies, and service arrangements. GCC Technologies is a registered trademark of GCC Technologies, Inc. ColorFast and Enhanced Color Resolution are trademarks of GCC Technologies, Inc.

22105J

CIRCLE 164 ON READER SERVICE CARD.

Inkjet

Color Printers

Affordable quality color is no longer an impossible dream. Here's one printer that makes it a reality and one that doesn't quite measure up.



Figure 1: The Hewlett-Packard DeskWriter C (right) is a remarkable value. The Kodak Diconix Color 4 (left) is less successful.

Until recently, a color printer was an expensive luxury. Only a few affordable color printers were available, and even the best ones were limited-duty machines. Although these printers were fine for printing charts and simple presentations, their low resolutions kept them from producing crisp, letter-quality text.

Times have changed. Since our last look at affordable color printers (see "The Affordable Rainbow: Color Inkjet Printers," October '91, page 140), two new models have taken up

the challenge of providing low-cost, all-purpose color. One of these printers succeeds, and the other doesn't.

The Technology

Both new printers — the Hewlett-Packard DeskWriter C and the Kodak Diconix Color 4 — use *inkjet* technology. Minute nozzles in each printer's disposable print-head cartridges transmit tiny drops of ink onto plain or clay-coated paper. The spacing of

these nozzles determines each printer's resolution: laser-quality 300 dpi in the case of the DeskWriter C and an inferior 192 dpi in the case of the Diconix Color 4.

The DeskWriter C's text quality is equal to that of Hewlett-Packard's popular monochrome DeskWriter. This is no surprise, because the DeskWriter C is essentially a color-capable DeskWriter that requires you to manually switch between a three-color and

NEVER DIG FOR FILES AGAIN

PLUS, YOU CAN UPGRADE ANY UTILITY TO HAND-OFF II FOR ONLY \$39.95

MACWEEK

"The only utility that offers application substitution, and its Launch Menu is our favorite."

MACUSER

"...it's indispensable."

MACINTOSH BUYER'S GUIDE

"It's a good value and a useful addition to any Macintosh."

MACWORLD

"HAND-Off can save you a good deal of trouble."

MACWEEK

"It's so good that Apple should have included it in System software."

MICROTIMES

"Connectix's technical support is second to none."

MACUSER

Gave HAND-Off II its highest rating—5 mice!



Stop the endless search for files with HAND-Off II, "the productivity tool that makes file access a snap. As MacUser said, "...it's indispensable."

LAUNCH YOUR FILES FASTER

The HAND-Off II launch menu speeds access to any file with a single mouse click from anywhere. You can launch a group of files simultaneously. It's the most convenient way to find and launch documents, even if they're missing or have been moved. HAND-Off II works with both Systems 6 & 7.

FIND YOUR FILES FASTER

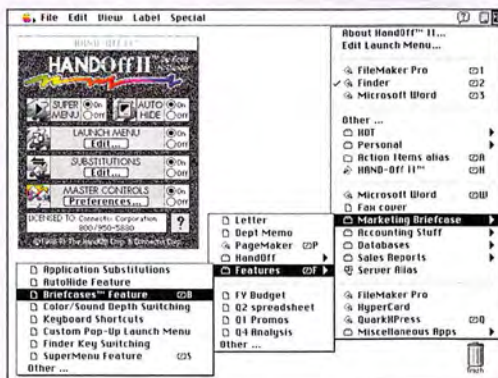
Quickly open documents, aliases, or applications directly from a multi-level Apple menu in System 7. This feature alone can save you hours.

OPEN FILES, EVEN IF THE APPLICATION IS MISSING

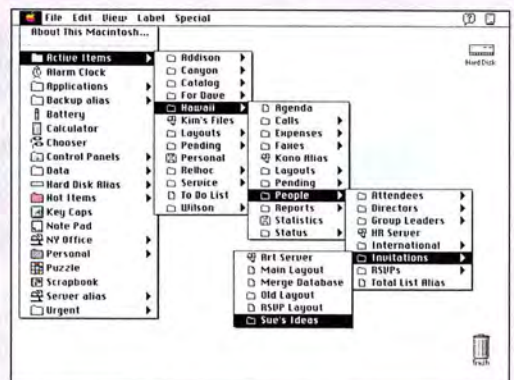
If the application you need is missing, HAND-Off II will launch your choice of a compatible substitute. It is the only program that automatically helps you set the substitutes you need. Say goodbye forever to the annoying "Application Not Found."

KEEP YOUR SCREEN CLUTTER-FREE

Eliminate the clutter of overlapping windows. With System 7, HAND-Off II's AutoHide™ shows only the windows you are using. It clears messy desktops automatically.



Supercharge multi-file access with HAND-Off II.



Locate and launch files quickly in System 7.

OPTIMIZE YOUR PERFORMANCE

With HAND-Off II, Macintoshes run faster when applications don't need full color. It automatically changes "Monitors" color settings so that your Macintosh® delivers its best performance at all times.

UPGRADE NOW FOR ONLY \$39.95

If you currently own another utility package, get the best. Upgrade to HAND-Off II for only \$39.95. Simply provide a photocopy of the master disk or manual cover with your order.

If you don't own a utility package, start off right. HAND-Off II is the productivity tool that the experts rave about. Order it today from your favorite software supplier, or directly from Connectix for the list price of \$99.

HAND-Off II comes with a 30-day money back guarantee. Plus, you'll get toll-free technical support and qualify for free updates when you register.

Order today by calling 800-950-5880 or by completing the coupon below. For even faster service, FAX your order directly to Connectix at 415-571-5195.

Get HAND-Off II now and stop digging for files forever.

800-950-5880

CONNECTIX



Name _____
 Company _____
 Address _____
 City _____ State _____ Zip _____
 Day phone _____
☐ Check enclosed **or** ☐ VISA ☐ MasterCard ☐ AmEx
 Card# _____
 Exp. Date _____
 Signature _____

☐ **YES!** I want to upgrade to HAND-Off II for just \$39.95 (plus \$4.00 U.S. standard shipping). I have enclosed a photocopy of the master disk or title page from another Macintosh utility.

☐ **YES!** I want HAND-Off II for just \$99.00 (plus \$4.00 U.S. standard shipping).

FAX your order to: 415-571-5195 **or** call: 1-800-950-5880
 Mail your order to: Connectix Corporation
 2655 Campus Drive • San Mateo, CA 94403

California residents, please add 8 1/4% sales tax.

MU050192RM

Figure 2: Image Quality

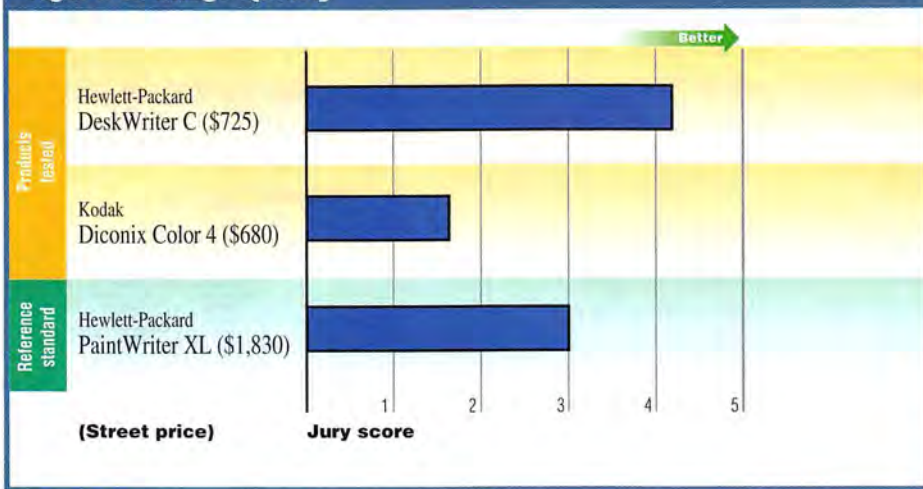


Figure 2: The Hewlett-Packard DeskWriter C offers exceptional print quality and is available for less than \$800. Our jury scored output quality from the DeskWriter C and the Diconix Color 4, using as a reference the output from a Hewlett-Packard PaintWriter XL, a winner in our most recent comprehensive report on color inkjet printers. Output from the PaintWriter XL was assigned a reference score of 3 on a scale that ranged from 1 to 5.

Figure 3: Printing Time

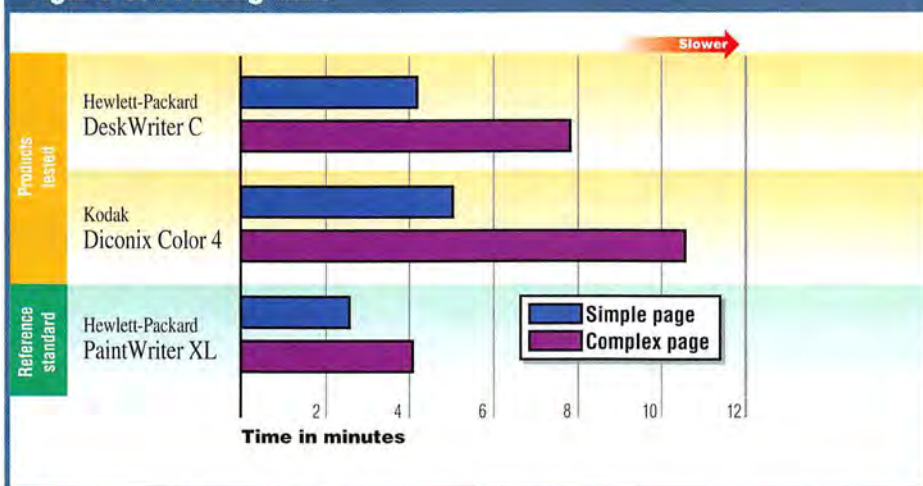


Figure 3: Despite its 192-dpi resolution, the Kodak Diconix Color 4 took longer than the 300-dpi Hewlett-Packard DeskWriter C to print a simple Claris Resolve presentation page. It also took longer to print a complex presentation document. The 180-dpi PaintWriter XL, however, easily sped past the DeskWriter C and the Diconix Color 4.

a black print-head cartridge. The Diconix Color 4 has four cartridges: one each for cyan, magenta, yellow, and black.

Heavily saturated images can soak and wrinkle a page. This is especially noticeable on pages produced by the DeskWriter C. Clay-coated paper is more resistant to warping and provides improved color. When creating transparencies, be sure to use a medium that's designed for inkjet printers. With the DeskWriter C, 3M CG3460 transparency film produces exceptionally fine results.

How They Rate

Whatever medium you choose, both printers are easy to set up and use. Whereas the Diconix Color 4 has only a serial port, the DeskWriter C also has a LocalTalk port, which allows network access. When you begin to print, prepare to wait: Neither printer has a PostScript interpreter or an internal microprocessor, so the Mac must prepare each page. Despite its 300-dpi resolution, which requires your Mac to calculate nearly two and a half times as many dots per page, the DeskWriter C beat the Diconix Color

4 in every test of printing time.

Our jury found the DeskWriter C's output clearly superior to that of the Diconix Color 4 in each of our four test documents. Although the DeskWriter's high resolution can share the credit, Hewlett-Packard's vibrant inks and an excellent scatter dither are also responsible for the high quality of the output.

On the Horizon

Even though the DeskWriter C is currently the best affordable color printer, challengers are on the way.

YOU'RE USING PRESENTATION SOFTWARE AND THEIR EYES ARE STILL GLAZED OVER.



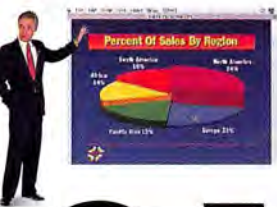
Let's face it. Audiences today are bored to death with presentation software. Everyone on the planet is using it. And it all looks the same. But there is a way to break the snooze factor—project your software on one of In Focus' new color LCD projection panels. Not only will your ideas look better, they'll have the waking power you need.

FORTUNATELY, OUR NEW LCD PANELS WILL MAKE

Simply slip one of our lightweight, portable panels on top of an overhead projector, and plug it into your PC or Mac. In mere seconds you're giving a full-color interactive presentation right off your computer. (Let everyone else fumble with transparencies and slides.) So you come across looking more polished, professional and persuasive. A change your audience will definitely notice.



YOUR IDEAS SCREAM OUT



And talk about efficient. Since you don't have to make hard copies of your presentation, turn-around time and outrageous costs are no longer issues. Plus, you can animate your information, even work with it during the meeting, which is infinitely more interesting than static data. All in vibrant colors, with unparalleled quality, saturation and contrast.

& WAKE THE

We offer a wide variety of products including the new 7000FX+ with 24,000 colors; the TVT-3000 active-matrix panel for multimedia; and the 7600XGA—the only panel for projecting stunning XGA images at 1024 x 768 resolution. So call 1-800-327-7231 for a free brochure with all the specifics. And bring dead presentations back to life.

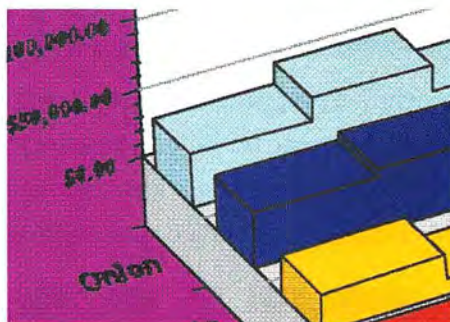
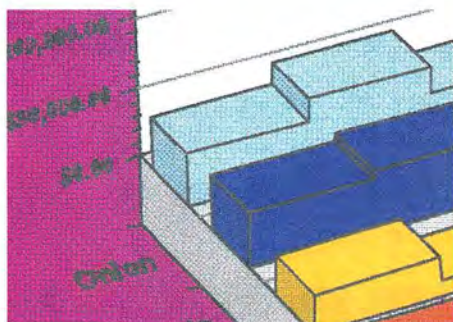
InFocus®
S Y S T E M S
CALL 800-327-7231

DEAD!

©1992 In Focus Systems, Inc. All rights reserved. In Focus is a registered trademark of In Focus Systems, Inc. All other trademarks are for identification purposes only and are the property of their respective companies.
7770 SW Mohawk Street, Tualatin, Oregon 97062. Phone (503) 692-4968. Fax (503) 692-4476. In Europe: Planetenweg 91, 2132 HL, Hoofddorp, The Netherlands. Phone 31 (0) 2503 23200. Fax 31 (0) 2503 24388.

CIRCLE 52 ON READER SERVICE CARD.

Figure 4: Output Samples



Although the Hewlett-Packard DeskWriter C can print on plain paper (left), printing on a special clay-coated medium (right) produces superior results.



A scatter dither generally produces better photo-realistic images (left, from the Hewlett-Packard DeskWriter C) than does a pattern dither (right, from the Kodak Diconix Color 4).

Canon, for example, has announced the BJC-820 printer, which employs an inkjet technology called *bubblejet*. The BJC-820 boasts 360-dpi output on plain paper as large as 11 x 17 inches.

When you choose the DeskWriter C's three-color cartridge, you're limited to *composite black* — an inferior almost-black that's created by overlaying the cyan, magenta, and yellow inks. We wouldn't be surprised if HP introduced an affordable four-color high-resolution printer — soon.

The Bottom Line

No longer are color printers too expensive and too limited for general use. The Hewlett-Packard DeskWriter C combines laser-quality text with excellent color output. Despite its limitations, it's an excellent personal printer and a great home-office choice.

— Rik Myslewski

Table 1: Features of Inkjet Color Printers

	Hewlett-Packard DeskWriter C	Kodak Diconix Color 4
	\$\$\$	\$\$\$½
List price	\$1,095	\$895
Street price	\$725	\$680
Pros	Low price. Excellent 300-dpi print quality on plain paper and 3M transparencies.	Quiet. Accepts plain paper. Low-profile design.
Cons	User must switch between black and color cartridges. Ink warps page.	Poor print quality. Limited print area. Low (192-dpi) resolution.
Company	Hewlett-Packard 19310 Pruneridge Ave. Cupertino, CA 95014 (800) 752-0900 (408) 725-8900	Eastman Kodak Co. 901 Elmgrove Rd. Rochester, NY 14653 (800) 255-3434 (716) 253-0740

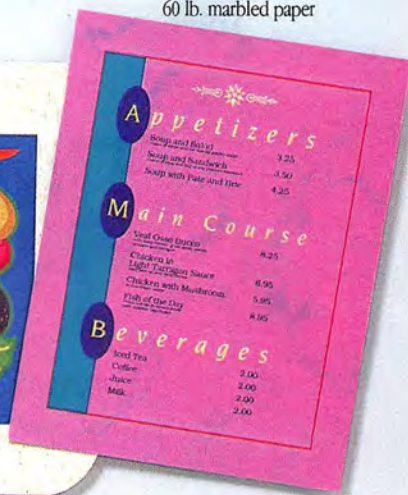
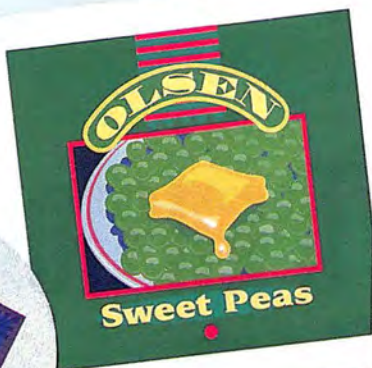
20 lb. copy paper

80 lb. text

60 lb. marbled paper



60 lb. text



It can take any paper you feed it.

80 lb. cover



24 lb. bond



20 lb. yellow pages paper



60 lb. marbled vellum

Have you ever wondered what your design would look like printed on a grocery bag? Okay, maybe not. But when you're working with a Phaser™ III color printer, your thoughts do tend to go a little wild.

Because you can feed the Phaser III any kind of paper, from 80 lb. bond to acetate. Even paper towels. It also takes sizes up to 12" x 18" for printing tabloid bleeds. And with 16.7 million colors delivered at 300 dpi, you get gorgeous color on any media.

It's driven by a 24 MHz RISC chip with 10 MB RAM. Fast enough for you? And with Adobe's PostScript™ Language Level 2, your message will come out loud and clear.

The only thing you need is a well-fed imagination. Call 1-800-835-6100 Dept. 21A for your free output sample.



Tektronix



Phaser is a trademark of Tektronix, Inc. for color printers and related products. PostScript is a trademark of Adobe Systems Incorporated which is registered in the USA and other countries. Other marks are trademarks or registered trademarks of the manufacturers or marketers of the products with which the marks are associated.

CIRCLE 40 ON READER SERVICE CARD.

Thermal-Wax-Transfer Color Printers

*Improved print quality, more features, faster printing, lower prices —
color printing's workhorses just keep getting better.*



The thermal-wax-transfer printer faces formidable challenges to its reign as the most popular color printer for publishing and design professionals. New phase-change printers offer plain-paper convenience, and improved continuous-tone printers produce output quality that manufacturers of thermal-wax-transfer printers can only dream of.

But don't count the old DTP workhorse out just yet: Vendors are slashing prices and adding features. As manufacturers strive to reduce the time it takes to produce high-quality color prints, speedy RISC microprocessors are becoming standard equipment in thermal-wax-transfer printers.

Figure 1: The latest generation of RISC-based thermal-wax-transfer printers (clockwise from top): the Seiko Personal ColorPoint PS, Seiko ColorPoint PSX Model 14, General Parametrics Spectra*Star 430, and Tektronix Phaser II PXi.

The Technology

When MacUser Labs last tested thermal-wax-transfer color printers (see "Easy Hard Copy: Color PostScript Printers," May '91, Buyer's Guide page 38), only one — the Seiko ColorPoint PS — used a RISC microprocessor. Since then, five new RISC-based thermal-wax-transfer color printers have appeared. This month we tested four units: the General Parametrics Spectra*Star 430, Seiko ColorPoint PSX Model 14, Seiko Personal ColorPoint PS, and Tektronix Phaser II PXi. The fifth, the CalComp

ColorMaster Plus, will be covered in a future report.

Every thermal-wax-transfer printer places images on the page in the same way: Colored wax comes on plastic ribbons in page-sized blocks of cyan, yellow, and magenta; some ribbons also include black. A thermal printing head melts only the wax that's required for the image onto a special paperlike medium at a resolution of 300 dpi. The "paper" is then peeled away, and the melted wax adheres to the paper; the unmelted wax remains on the ribbon.

PHOTOGRAPHY: STAN MUSILEK

IF YOU CAN'T SEE THE DIFFERENCE, WHY PAY THE DIFFERENCE?

©1991 RasterOps Corporation. All brand names and products are trademarks or registered trademarks of their respective holders.



THE POPULAR \$30,000 PRINTER.



THE \$10,999* RASTEROPS CORRECTPRINT 300.



INTRODUCING THE RASTEROPS CORRECTPRINT 300.

THE ONLY TRULY AFFORDABLE PHOTOREALISTIC PRINTER.

Until now, only high priced printers gave you high quality color output.

But here's the new RasterOps CorrectPrint 300. An incredibly inexpensive printer that uses dye sublimation technology at 300 dpi to give you dramatic, continuous tone color at every pixel, without dithering.

A printer that turns out low cost, professional-looking comps and proofs.

A printer that uses a 33-Mhz RISC processor to get the job done fast.

The new CorrectPrint 300 even includes PostScript®. And it has four networking ports for shared environments.

Wouldn't a printer like this, at a price like this, make a tremendous difference in your company?

Find out today. See your dealer or call 1.800.SAY.COLOR.

RASTEROPS®

THE ART & SCIENCE OF COLOR™

*Suggested retail price. Memory expansion kit required.

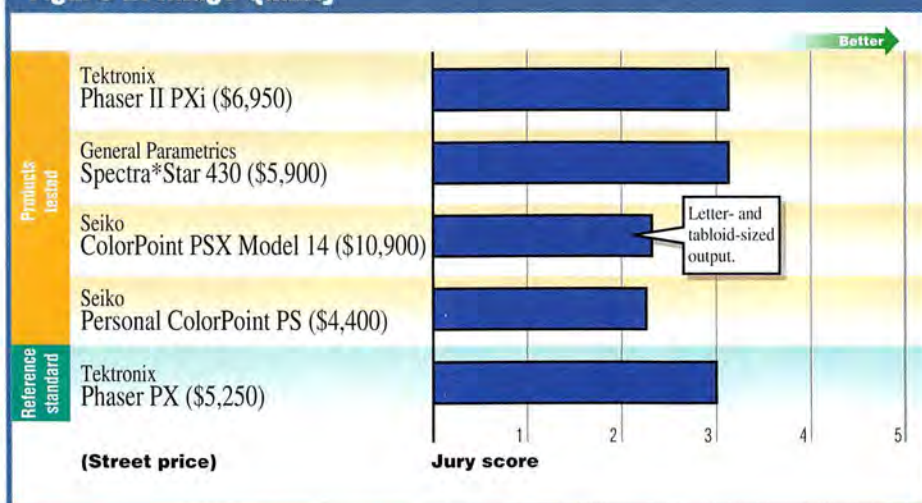
Figure 2: Image Quality


Figure 2: Our jury compared output samples from the four new RISC-based thermal-wax-transfer printers with the same samples printed by the Tektronix Phaser PX, a winner in our most recent comprehensive report on color PostScript printers. The Phaser PX's output was assigned a reference score of 3 on a scale that ranged from 1 to 5. The Seiko ColorPoint PSX Model 14 is the most expensive, but it's the only printer of the group that can print 11-x-17-inch (tabloid-sized) bleeds.

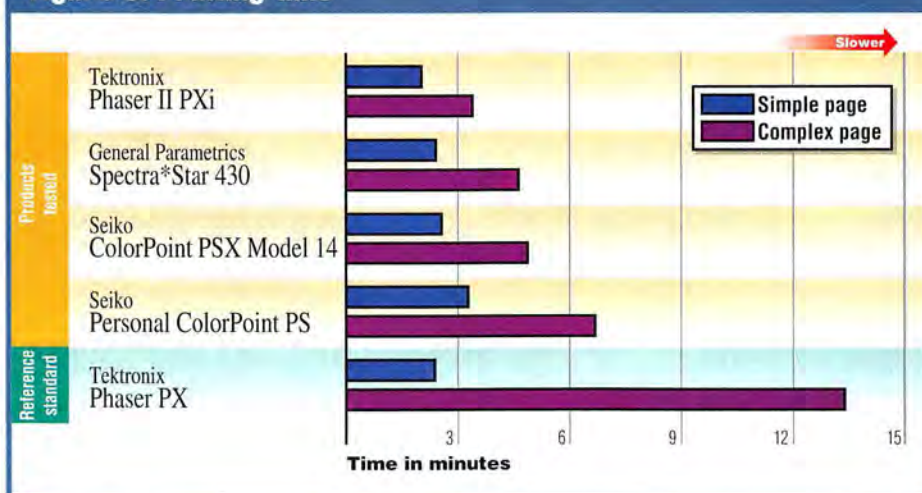
Figure 3: Printing Time


Figure 3: We anticipated that the new printers' RISC microprocessors would provide a measurable boost in speed, but only the Tektronix Phaser II PXi could match the older, 68020-based Tektronix Phaser PX when printing simple letter-sized presentations. However, all these printers — especially the Adobe PostScript Level 2-equipped Phaser II PXi — performed impressively when printing a page filled with complex PostScript images.

How They Rate

A PDL (page-description language) tells the printer exactly where to put each of the 300 dots per inch. The Phaser II PXi features Adobe's PostScript Level 2 PDL; this major rewrite of original PostScript improves printing speed and will enable superior color control once the proper driver software has been provided by Adobe. Both Seiko printers use the PhoenixPage PostScript Level 1 emulator, and the Spectra*Star 430 uses the PowerPage emulator, from Pipeline Associates.

In past testing, we've discovered that the performance of PostScript clones rarely matches that of the real thing. This month's testing confirms that observation: The Phaser II PXi processed all our test documents — from simple presentations to scanned photographs — faster than any other color printer using any technology.

Surprisingly, however, when we printed the test documents on our reference printer, a Tektronix Phaser PX, a moderately slow non-RISC-based printer (and a top pick in our May '91 report, because of its excellent output

quality), it was faster than each of the new RISC-based printers except the Phaser II PXi when printing a simple presentation page.

The Tektronix Phaser II PXi was not only the fastest printer we tested but its output also tied for top thermal-wax-transfer print-quality honors with that produced by the General Parametrics Spectra*Star 430, according to our jury. What's more, each produces exceptional transparencies — an important advantage over the competing phase-change Tektronix Phaser III PXi, which produces bright prints

THE PINNACLE.

TYPE: 3.5" OPTICAL
CAPACITY: 128 MB
SIZE: 6.75"(H) x 2.125"(W) x 8.25"(L)
MOUNTING: VERTICAL OR HORIZONTAL



The Pinnacle. The top. The leader in optical storage. Since 1988, Pinnacle's been the world's leader in optical storage solutions, shipping more systems than any other company.

Introducing the Pinnacle Micro REO-130S rewritable optical drive featuring the new Sony 3.5" mechanism. With its 38 msec access time, the REO-130S is the perfect storage solution for personal computing, desktop publishing, multimedia, data distribution and backup.

Company	Per Disk Price	Per Disk Capacity	Price For 5 Disks	Capacity Of 5 Disks	Drive Price
Pinnacle Micro REO-130S	\$.79	128 MB	\$ 3.95	640 MB	\$1995
Imagicon Bernoulli® 90	.229	90 MB	1.145	450 MB	1.149
Syquest™ (PLI) 88	.229	88 MB	1.190	440 MB	1.199

Pricing advantage over Bernoulli® and Syquest™. Pinnacle's REO-130S offers a lower cost per megabyte compared to its magnetic storage competition. Users now need fewer disks while getting more storage capacity at a lower price.

Optical Technology has distinct advantages over the Bernoulli® and Syquest™ technology. Since optical drives use laser technology to store information there is no chance of head crashes. 3.5" optical has a much smaller footprint than 5.25" magnetic but holds 40% more data.

Reliability of optical media is 15 years (shelf life) - that's 3 times longer than Bernoulli® and Syquest™ magnetic disks. Since the 3.5" cartridges are removable, optical remains the most secure way of storing your data into the future.

Media Standards for 3.5" optical disks have both ISO and ANSI standards to support the technology, while Bernoulli® and Syquest™ have none. Each 3.5" disk can be recognized in any 3.5" ISO/ANSI standard optical drive.

The Pinnacle Advantage is clear. Pinnacle Micro dominates the optical storage industry by offering the largest selection of 3.5" and 5.25" optical drives and disk changers. Interface kits are available for MAC, SUN, DEC, IBM and compatibles. The Pinnacle. Your next storage system.

Trademark Owners: REO-130S of Pinnacle Micro, Inc.; PLI of Peripheral Land, Inc.; Syquest of Syquest Corp. Registered Owners: Bernoulli of Imagicon; Pricing acquired directly from manufacturers on 11-5-91.

 **800-553-7070**

PINNACLE MICRO

CIRCLE 72 ON READER SERVICE CARD

19 Technology • Irvine CA 92718 • In CA (714) 727-3300 • Fax (714) 727-1913

THE OPTICAL STORAGE COMPANY™

on opaque media but can manage only dull transparencies. It isn't surprising that the Phaser II PXi and Spectra*Star 430 should tie for top honors: Both use essentially identical Sharp printing engines.

Output from the two Seiko printers was not as impressive as that from the other two units, but it was better than output from most of the printers in our May '91 report. However, don't believe the Seiko Personal ColorPoint PS ads that tout its ability to print on "laser plain paper." When we did so, the results were far from satisfactory.

On the Horizon

Even when printed on a medium designed especially for thermal-wax-transfer printers, images from the Personal ColorPoint PS sometimes had *dropouts*, tiny spots where wax failed to adhere to the page. The Personal ColorPoint PS' most outstanding feature is its price: less than \$5,000. By the time you read this, Tektronix should have released some serious competition—the RISC-based Phaser II PXe. The Phaser II PXe's price will match that of the Personal ColorPoint PS and will include PostScript Level 2, with all its advantages.

Figure 4: Output Samples



The Seiko Personal ColorPoint PS printer provides high-quality output when printing on a medium designed for thermal-wax-transfer printers.



Quality suffers when the Seiko Personal ColorPoint PS prints on plain paper, despite Seiko's claim that the printer can print on "laser plain paper."

The Bottom Line

Price competition is but one indication that manufacturers of thermal-wax-transfer printers are trying hard to maintain their machines' popularity among DTP and graphics professionals. They're also adding RISC power, new features such as automatic switching among multiple ports (found on all four printers), and enhanced upgrade paths—the General

Parametrics Spectra*Star 430, for example, can be upgraded to the model 440, which includes an internal hard drive, or to the 450, which adds a 35mm slide maker. The General Parametrics Spectra*Star 430 and its faster, more expensive PostScript Level 2 cousin, the Tektronix Phaser II PXi, are our choices for the best thermal-wax-transfer printers.

— Rik Myslewski

Table 1: Features of Thermal-Wax-Transfer Color Printers

	General Parametrics Spectra*Star 430 tttt	Seiko ColorPoint PSX Model 14 ttt½	Seiko Personal ColorPoint PS ttt½	Tektronix Phaser II PXi tttt½
List price	\$6,995	\$12,999	\$4,999	\$7,995
Street price	\$5,900	\$10,900	\$4,400	\$6,950
Pros	Excellent output. Accepts PostScript, HPGL, TARGA, and NAPLPS files. Options include slide printer and internal hard drive.	Can use a wide range of media. Can do full tabloid bleeds. Small footprint. Optional iron-on-transfer media.	Inexpensive. Personal-sized footprint. Very easy to set up and use.	Fastest printer tested. Includes Adobe's PostScript Level 2. Excellent output, including exceptional transparencies.
Cons	PipeLine's PowerPage PostScript clone is slower than Adobe's PostScript Level 2.	Media supplied on roll, which causes waste when installed and when images are trimmed.	Poor printing quality on plain paper. Slow.	Most expensive printer for producing letter-sized pages.
Company	General Parametrics 1250 Ninth St. Berkeley, CA 94710 (800) 223-0999 (510) 524-3950	Seiko Instruments, Inc. 1130 Ringwood Ct. San Jose, CA 95131 (408) 922-5900	Seiko Instruments, Inc. 1130 Ringwood Ct. San Jose, CA 95131 (408) 922-5900	Tektronix, Inc. P.O. Box 500 Wilsonville, OR 97077 (800) 835-6100 (503) 627-7111

How to Master 20 Popular Macintosh Programs Without Ever Reading The Manuals

Macintosh Programs Can Be Learned in a Few Hours With the Right Training

Over the past four years I've been associated with over 50,000 people attempting to learn the Macintosh computer. I've watched as each person wages their own personal, private battle to master the computer and the most popular Macintosh programs.

I've seen their frustration, have empathized with their confusion, and understood their computer fears. I've talked to workers who have had new computers and new programs simply dropped on their desk with the directive to, "learn this." I've listened to people who have struggled night after night trying to read and understand a computer manual. Can you imagine trying to understand and master 4th Dimension from the manual?

You would be surprised at the number of people who have confided with me the fact that they've given up trying to learn some of the programs. They put the box on the shelf and write the expenditure off as a bad investment.

Hard Earned Money Wasted

Can you imagine how much money has been wasted on programs and computers that are sitting abandoned? Right now think of the people working on Macs in your office. Do they really understand the computer? Do they know what to do when it goes down? How many programs are each of your people using? Have they really mastered the programs they're using? Do they know the short-cuts and valuable techniques that will save you time, money, and increase your professionalism?

An Excellent, Low Cost Training Answer

Four years ago I founded MacAcademy. My purpose was to create a training organization that provided training similar in nature to the Macintosh itself - simple, easy to use, and effective.

Now, four years later the concept has proven to be a great success. Right now people are benefiting from MacAcademy training in over 100 cities in the U.S., in Canada, Great Britain, Australia, Japan, Hong Kong, and 22 additional countries throughout the world.

MacAcademy training is successful for one reason - it works!



The Video Answer

Two years ago we introduced the MacAcademy Video Training Library. This library now includes over 45 different titles. Each video is 2 hours long and offers clear, concise, effective training for the Macintosh and over 20 popular programs. In many cases you can purchase up to 6 hours of training for one program.

MacAcademy has resisted the temptation to follow competitive training programs who have recently implemented large price increases. Our videos started out at \$49 each and are still only \$49. The best training in the business for less than \$50. This low cost training alternative has proven to be the Macintosh training choice of over 10,000 companies.

Guaranteed Results

The MacAcademy reputation is excellent. Our guarantee is simple: If you're not happy we'll give your money back. No hassles or problems.

To Order

Here is a partial list of over 80 MacAcademy Video Training Tapes now available. To order, simply send check, credit card information, or purchase order to MacAcademy Videos Dept. MU5/92 477 S. Nova Rd. Ormond Beach, FL 32174 or call the numbers listed below. Now is the time to start training. Thank you for allowing MacAcademy to help you in that effort.

**To Order: Call Toll Free
1-800-527-1914**

**FAX Orders Call
1-904-677-6717
48 Hr. Delivery**

The Macintosh Part 1-6.0 or 7.0	<input type="checkbox"/>
The Macintosh Part 2-6.0 or 7.0	<input type="checkbox"/>
The Macintosh Part 3-6.0 or 7.0	<input type="checkbox"/>
Macintosh Networks	<input type="checkbox"/>
Utilities, CDEV's, Inits	<input type="checkbox"/>
Using System 7	<input type="checkbox"/>
HyperCard Basics Part 1	<input type="checkbox"/>
HyperCard HyperTalk Part 2	<input type="checkbox"/>
HyperCard HyperTalk Part 3	<input type="checkbox"/>
Adobe Illustrator Part 1	<input type="checkbox"/>
Adobe Illustrator Part 2	<input type="checkbox"/>
Adobe Illustrator Part 3	<input type="checkbox"/>
Freehand Part 1	<input type="checkbox"/>
Freehand Part 2	<input type="checkbox"/>
Freehand Part 3	<input type="checkbox"/>
MacDraw Pro Part 1	<input type="checkbox"/>
MacDraw Pro Part 2	<input type="checkbox"/>
Canvas 3.0 Part 1	<input type="checkbox"/>
Canvas 3.0 Part 2	<input type="checkbox"/>
Canvas 3.0 Part 3	<input type="checkbox"/>
SuperPaint 3.0 Part 1	<input type="checkbox"/>
SuperPaint 3.0 Part 2	<input type="checkbox"/>
SuperPaint 3.0 Part 3	<input type="checkbox"/>
PageMaker Part 1	<input type="checkbox"/>
PageMaker Part 2	<input type="checkbox"/>
PageMaker Part 3	<input type="checkbox"/>
PageMaker Part 4 (New)	<input type="checkbox"/>
QuarkXPress Part 1	<input type="checkbox"/>
QuarkXPress Part 2	<input type="checkbox"/>
QuarkXPress Part 3	<input type="checkbox"/>
Excel 3.0 Part 1	<input type="checkbox"/>
Excel 3.0 Part 2	<input type="checkbox"/>
Excel 3.0 Part 3	<input type="checkbox"/>
Excel 3.0 Part 4	<input type="checkbox"/>
Photoshop Part 1	<input type="checkbox"/>
Photoshop Part 2	<input type="checkbox"/>
Photoshop Part 3	<input type="checkbox"/>
ClarisWorks Word Processing 1	<input type="checkbox"/>
ClarisWorks Spreadsheet 2	<input type="checkbox"/>
ClarisWorks Database 3	<input type="checkbox"/>
ClarisWorks Graphics & Com. 4	<input type="checkbox"/>
FileMaker Pro Part 1	<input type="checkbox"/>
FileMaker Pro Part 2	<input type="checkbox"/>
FileMaker Pro Part 3	<input type="checkbox"/>
Word 5.0 Part 1	<input type="checkbox"/>
Word 5.0 Part 2	<input type="checkbox"/>
Word 5.0 Part 3	<input type="checkbox"/>
Persuasion Part 1	<input type="checkbox"/>
Persuasion Part 2	<input type="checkbox"/>

CIRCLE 83 ON READER SERVICE CARD.

© 1992 Florida Marketing International, Inc.

Phase-Change Color Printers

A new technology offers tabloid-sized output, PostScript Level 2, and brilliant colors on plain paper. Is this the end of the familiar thermal-wax-transfer color printer?



Figure 1: The Tektronix Phaser III PXi offers brilliant colors on letter- or tabloid-sized plain paper — if you're not in a hurry.

When high-quality color printing first appeared for the Mac, it came in only one flavor: thermal-wax transfer. This now-aging technology still provides DTP and graphics professionals the crisp, colorful, high-resolution images they demand, but it requires specially coated paper and uses expensive and cumbersome wax ribbons.

The dominance of thermal-wax-transfer printers may be nearing its end. Inkjet printers are steadily improving, the prices of continuous-tone printers are dropping sharply, and a new technology — *phase-change* — is setting new standards for convenience, economy, and color quality.

The Technology

Phase-change printing is so named because its solid color-carrying medium, dye-impregnated wax, changes its *phase* — or physical state — to a liquid when it melts before being transferred to the page and then back to a solid as it hardens on the page. The phase-change color printer we examined for this update report, the Tektronix Phaser III PXi, secures the wax to paper by applying cold pressure of 3,000 pounds per square inch.

Three advantages of this technology stand out: First, the color-carrying medium is an inexpensive, easily

handled “crayon.” Second, phase-change technology lets you print on almost any medium that can fit through the printer — plain paper, transparencies, card stock, or tissue paper. The cost savings can be substantial: The Phaser III PXi prints a tabloid page for 50 cents, compared with more than a dollar for a typical page produced by a thermal-wax-transfer printer. Third, the colors in the wax can be brilliant — for example, the magenta dye used in the Phaser III PXi actually fluoresces, unlike printing inks; this brilliance can cause color-matching problems, however.



TECHWORKS



UNCONDITIONAL
LIFETIME WARRANTY

THIRTY-DAY
MONEY-BACK GUARANTEE

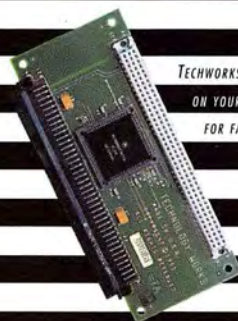
TOLL-FREE
TECHNICAL SUPPORT

With TechWorks Memory Kits you can run memory-intensive new programs much faster. All our modules utilize highly reliable surface mount technology and CMOS memory chips.

GET MORE COLOR POWER FOR YOUR LC WITH TECHWORKS 512K VRAM CARD.

Power Up To Maximum Ram

MEMORY KITS	SIMM SIZES AVAILABLE						
	1MB	2MB	3MB	4MB	6MB	8MB	16MB
MACINTOSH PLUS	*						
MACINTOSH SE	*						
MACINTOSH SE/30	*			*			
MACINTOSH II	*			*			
MACINTOSH IIX	*			*			
MACINTOSH IICX	*			*			
MACINTOSH IICI	*	*		*		*	*
MAC CLASSIC	*		*				
MAC CLASSIC II	*	*		*			
MACINTOSH LC	*	*		*			
MACINTOSH IISI	*	*		*		*	
MACINTOSH IIFX	*			*		*	*
LASERWRITER IINTX	*						
TI MICROLASER	*						
HP LASERJET	*	*		*			
PORTABLE	*		*				
QUADRA 700	*			*			
QUADRA 900	*			*		*	*
POWERBOOK 100		*		*	*		
POWERBOOK 140		*		*	*		
POWERBOOK 170		*		*	*		
CARDS							
MACINTOSH LC	512K VRAM - LC FPU						
MACINTOSH IISI	ADAPTER CARD - ADAPTER CARD WITH FPU						
QUADRA 700/900	256K VRAM						
MACINTOSH IICI	CACHE CARD						



TECHWORKS ADAPTER CARD RUNS ALL SE-30 PRODUCTS ON YOUR IISI. ALSO AVAILABLE WITH FPU FOR FAST MATH.



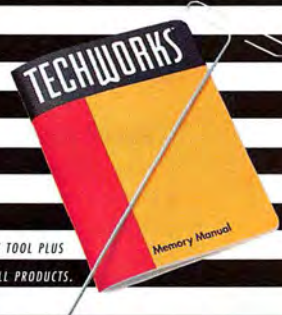
HIGH SPEED CALCULATING FOR YOUR LC WITH OUR LC FPU.



16 MEG MEMORY MODULE FOR HEAVY-DUTY HIGH-SPEED PERFORMANCE.



NEAR PHOTOGRAPHIC QUALITY IMAGES ARE ATTAINABLE FROM ANY QUADRA WITH OUR NEW 256K VIDEO CARD.



MORE POWER FOR THE POWERBOOK.™
AVAILABLE IN 2MB, 4MB, AND 6MB.

CALL ABOUT OUR MEMORY UPGRADE TRADE IN SPECIAL

FREE INSTALLATION KIT AND TORX TOOL PLUS
TOLL-FREE TECHNICAL SUPPORT INCLUDED WITH ALL PRODUCTS.

CORPORATE PO'S ACCEPTED, ALL MAJOR CREDIT CARDS HONORED AND VOLUME DISCOUNTS ARE AVAILABLE. FACSIMILE ORDERS: 512-794-8520. TECHNICAL SUPPORT: 800-933-6113. BUSINESS LINE: 512-794-8533.

TechWorks, Inc., 4030 Braker Lane West, Suite 350, Austin, Texas 78759-5319.
Technology Works and TechWorks are trademarks belonging to Technology Works, Inc. All other trade names referenced are the proprietary service mark, trademark, or registered trademark of the respective manufacturer.

TOLL
FREE
DIRECT

800-866-2785

CIRCLE 105 ON READER SERVICE CARD.

Figure 2: Image Quality

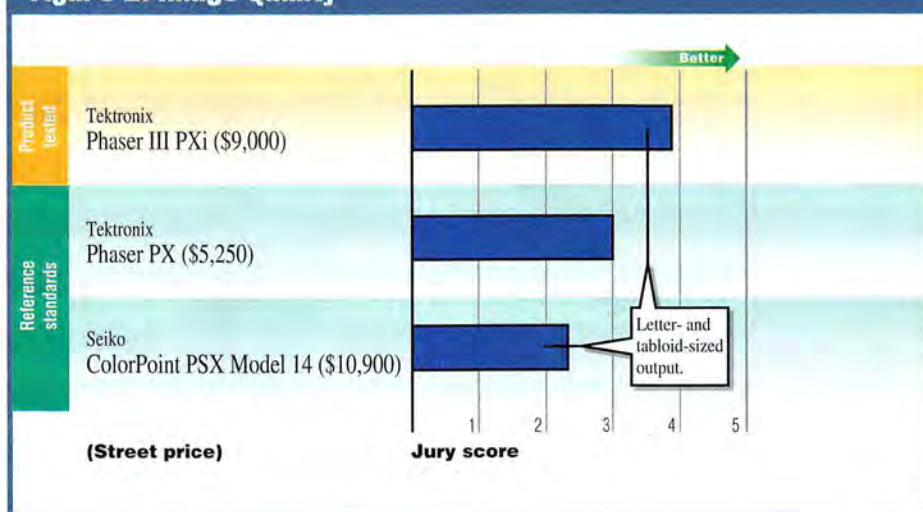


Figure 2: Our jury compared output samples from a Tektronix Phaser III PXi, which can print tabloid-sized pages, with samples printed by two thermal-wax-transfer printers: a letter-sized page from a Tektronix Phaser PX, a winner in our most recent comprehensive report on color PostScript printers, and a tabloid-sized sheet from a Seiko ColorPoint PSX Model 14. The Phaser PX's output was assigned a reference score of 3 on a scale of 1 to 5.

Figure 3: Printing Time

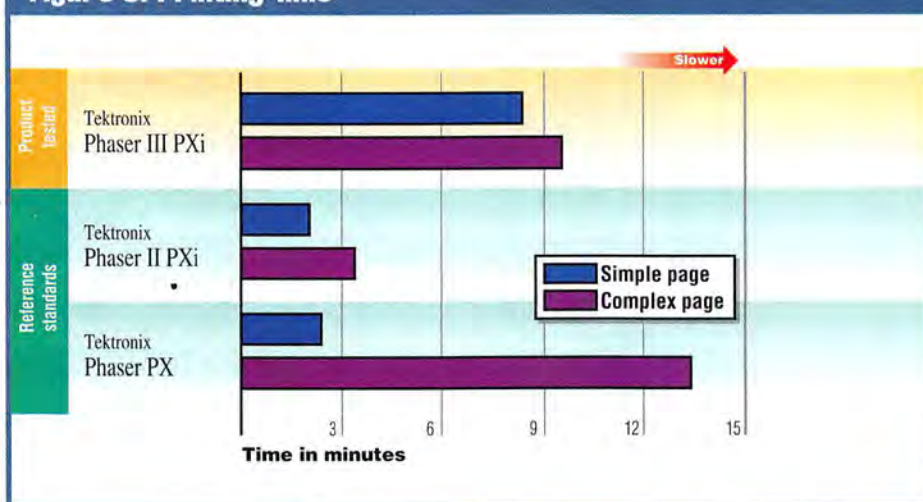


Figure 3: Although the Tektronix Phaser III PXi's fast RISC microprocessor can quickly prepare a page for printing, the print head is in action for as long as eight minutes. We compared the time a Phaser III PXi and two Tektronix thermal-wax-transfer color printers took to print a letter-sized presentation page. The older Phaser PX, with its proprietary PostScript-clone interpreter, was the slowest when printing a page filled with complex PostScript images.

How It Rates

The Phaser III PXi has at least three more shortcomings: It produces second-rate transparencies (our jury determined the image quality it produces on paper to be superior to that produced by any thermal-wax-transfer printer we've tested, however). Another problem is that the unit is large: At 90 pounds and with a 35-x-25-inch footprint, it's hardly a personal desktop printer. Also, our tests showed it to be slower than many thermal-wax-transfer printers when printing simple or complex presentation pages.

Although its powerful Am29000 RISC microprocessor can process images as fast as the microprocessor of an equally powerful thermal-wax-transfer printer can, the Phaser III PXi uses a bulky 10-pound print head to transfer wax onto a page, a process that can take as long as eight minutes for a full tabloid image.

On the Horizon

The Phaser III PXi's performance will improve when Adobe's PostScript Level 2 driver software, with its improved color-handling and image-

compression capabilities, is finally released. Other phase-change printers are also appearing, and one of them — the Dataproducts Jolt PS — will also incorporate Adobe's PostScript Level 2 page-description language. The Jolt PS, powered by a Weitek 8220 RISC microprocessor, will list for less than \$7,000 and will be released soon after Adobe releases its Level 2 driver — probably later this year.

Brother is readying its own phase-change — or what the company calls *hot melt* — printer. Using a proprietary page-description language, BR

One Source for All Your Electronic Publishing Needs...PrePRESS DIRECT!

At PrePRESS DIRECT! we take great pride in providing our customers with a high level of prepress knowledge. Our phone lines are staffed with knowledgeable sales consultants not just order takers. And since electronic publishing is the only market to which we cater, our sales consultants are focused, and their knowledge abundant when it comes to the Macintosh® prepress industry.

Give PrePRESS DIRECT! a call today. We'll share our knowledge and spend the time to make sure you are as well informed as possible, before you place your order.

Blank Media:

SyQuest 44 MB Blank	\$ 79
SyQuest 88 MB Blank	\$ 129
128MB Optical	\$ 55
650MB Optical	\$ 129

Memory Upgrades:

4 MB Upgrade - 80ns	\$ 199
16 MB Upgrade - 80ns	\$ 599
64 MB Upgrade - 80ns	\$ 5995

Software and Fonts:

Call for the best prices on DTP software and fonts!

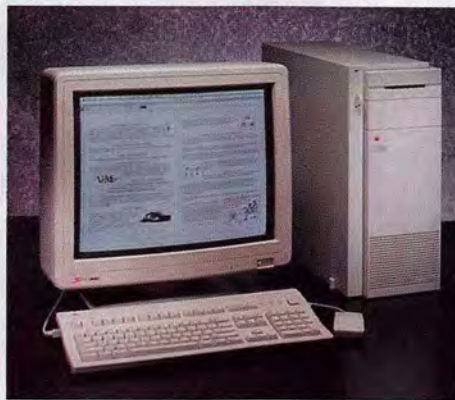
Call for pricing on:

- Macintosh-based Publishing Workstations
- FWB Hammer Hard Drives
- Hewlett Packard Printers
- MicroNet Hard Drives
- Microtek Labs
- PLI Hard Drives
- QMS Printers
- RasterOps Products
- Sharp Color Scanners
- SuperMac Video Products
- Tektronix Printers
- Varityper® Tabloid Laser Printers
- Wacom Tablets

PrePRESS DIRECT! for affordable prepress solutions!

PrePRESS DIRECT!

11 Mt Pleasant Ave.
East Hanover, NJ 07936-9986



2990 Color Publishing System

The Varityper 2990A and 2990B are entry-level systems that are capable of high-quality, color production and are ideal for use in the preparation of sales promotion materials, pamphlets, brochures, annual reports, and other printed matter.

2990A Color Publishing System

Macintosh Quadra 900 with:

- 33 MHz 68040 processor
- 414 MB Internal Hard Drive
- 44 MB Internal SyQuest
- 36 MB of RAM
- 24 Bit Video Interface
- Extended Keyboard
- 16" Color Monitor
- Color Management System
- VariColor™ Publishing System Software Package

\$ 20,495

2990B Color Publishing System

As above and also includes:

- 828 MB Internal Hard Drive
- 68 MB of RAM
- 20" Color Monitor

\$ 30,995

2990A/4990A System Bundle

From Mac to film with a comprehensive package:

- 2990A Color Publishing System
- 4990A PostScript™ Imagesetter
- BarneyScan CIS•3515 Color Scanner
- BarneyScan CIS•Color Access Software
- Sharp JX-600 reflection scanner
- 7140 Film Processor

\$ 69,995*

*Price includes Installation, Training, Annual Service and HelpLine Contracts.

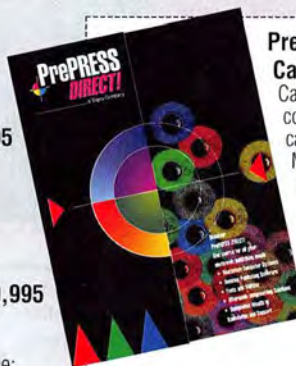


Varityper 4990A

PrePRESS DIRECT! is proud to offer the best value in the imagesetting market, the Varityper 4990A. At an amazing \$21,995, the 4990A offers a PostScript 8MB Atlas RIP, 35 built-in fonts, 42MB RIP/font disk, 100+MB page buffer, and both 1200/2400 dpi resolutions. Whether you're a desktop publisher, design agency, quick printer, newspaper, or magazine, you'll appreciate the quality and functionality of the 4990A. Call today for more information on the 4990A and other affordable imagesetting solutions from PrePRESS DIRECT!

(shown with optional stand)

only \$21,995



PrePRESS DIRECT! Catalog—

Call or write today for your FREE copy of PrePRESS DIRECT's catalog. Featuring complete Macintosh computer systems, monitors, hard drives, memory expansion, accelerators, DTP software, fonts, and accessories. One source, one catalog for all your electronic publishing needs.

Name _____
Address _____
City _____
State _____
ZIP+4 _____
TEL: _____

MU05

Payment

- Major Credit Cards Accepted - Master Card, Visa, and American Express. No surcharge added! Your credit card is not charged until your order is shipped.
- Checks - All checks are held for clearing - Certified, Cashier Checks and Money Orders Ship immediately.
- COD Orders - Limited to \$1,000 per order. Certified, cashier's check or money order only. Add \$3.00 per order.
- Purchase Orders - Educational, government, and corporate purchase orders accepted. All purchase orders are subject to credit approval.

- Leasing - We offering leasing to qualified businesses. All leases are subject to acceptance by NorWest Financial Leasing.
- We use FEDERAL EXPRESS for prompt dependable delivery (only \$5.50 per order on orders under 20 lbs.).
- 30-day, Money-Back Guarantee, if you are not 100% satisfied with any purchase from PrePRESS DIRECT! (software, freight, installation, and training excluded).
- Product warranty terms are available upon request.
- Fax 24 hours a day 1-201-887-4300.

1-800-443-6600

Outside US & CANADA 1-201-887-2300



a Tegra Company

MU05

All prices and specifications are subject to change. PrePRESS DIRECT! is a trademark of PrePRESS DIRECT, Inc. Macintosh is a registered trademark of Apple Computer Inc. Varityper is a registered trademark and VariColor is a trademark of Varityper, Inc. PostScript is a trademark of Adobe Systems Incorporated which may be registered in certain jurisdictions. Other product names are trademarks of their respective companies.

CIRCLE 66 ON READER SERVICE CARD.

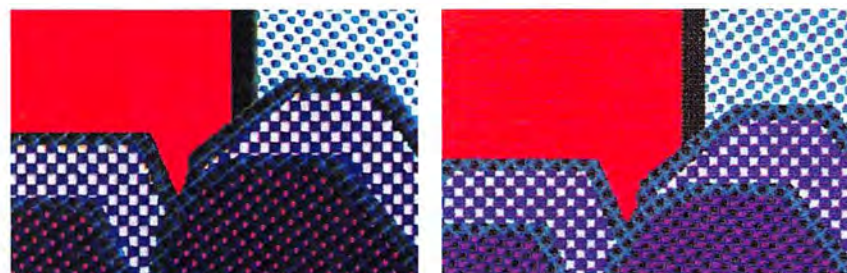
Figure 4: Output Samples



The Tektronix Phaser III PXi prints crisp images on plain paper. On the right is a sample of Phaser III PXi output on plain paper, magnified two times. The image on the left is printed by a thermal-wax-transfer printer on a special medium. The difference is imperceptible.



The bright magenta dye used by the Phaser III PXi (right) results in a "hotter" purple than that produced by the thermal-wax-transfer Phaser II PXi (left). The bottom row shows each sample magnified four times to demonstrate the dither pattern.



Script, a prototype of this as-yet-unnamed printer produced the finest transparencies we've ever seen.

The Bottom Line

If you're considering a high-end color printer but are concerned about the limitations of thermal-wax-transfer technology, take a close look at the Tektronix Phaser III PXi. It may be big and slow — and its phase-change technology may not have the millions of hours of real-world experience of thermal-wax-transfer technology — but it prints beautifully on almost anything, and for a tabloid-sized high-quality PostScript Level 2 printer, it's priced right.


— Rik Myslewski 

Table 1: Features

	Tektronix Phaser III PXi ★★★★
List price	\$9,995
Street price	\$9,000
Pros	Bright, saturated colors. Low cost per page. Prints on most media. Very good print quality.
Cons	Mediocre transparency quality. Requires 20-minute warm-up. Magenta may be too bright for some uses. Large. Slow.
Company	Tektronix, Inc. P.O. Box 500 Wilsonville, OR 97077 (800) 835-6100 (503) 627-7111

Corporate Takeover



Bernoulli® and SyQuest . . . each is trying to take over the corporate world with their special technology for removable media. Who will be the winner? You will, if you choose the ETC DataPort™.



Besides offering SyQuest and Iomega drives as options in the ETC DataPort, ETC Peripherals provides a full line of storage peripherals and memory upgrades for your Macintosh®.

Start with the DataPort cartridge. It's a 3 1/2" Winchester drive in a removable cartridge. Just like removable disks, the DataPort cartridge can be removed for storage, or carry it to another location. Better than a removable disk, our cartridges can access your data faster, and it's available in greater capacities ranging from 105 Mb to 1.0Gb. And, with our exclusive ETC Tools, you can even combine several smaller drives into a single, super volume—up to 2.1 Gb!

Next pick your system. . . the DataPort Twin with 2 drives or the Tower with 4. Fill the slots with DataPort cartridges and either a Bernoulli or SyQuest drive. Need something special? We can configure any combination you need.

Don't get caught on the wrong side of a power struggle. Play both sides. Call 800-882-2863.



ETC Peripherals, 5426 Beaumont Center Boulevard, Suite 300, Tampa, FL 33634, (800) 882-2863, (813) 884-2863, Fax: (813) 888-9535

The DataPort is protected by patents 4,941,841 and 308,841. All brands and product names are trademarks or registered trademarks of their respective holders.

© 1992 Exportech Trading Corporation, d.b.a., ETC Peripherals

CIRCLE 63 ON READER SERVICE CARD.

Continuous-Tone Color Printers

Sometimes only the best will do. Perfection is still expensive, but a new, aggressively priced crop of photo-quality printers will ease your access to excellence.

What is acceptable print quality? The answer involves not only what you plan to do with a printed page but also who decides what's acceptable — you or the client you're trying to impress.

Despite the dominance of thermal-wax-transfer printers and the introduction of phase-change technology, a new high-quality standard is beginning to emerge: continuous-tone printing. As familiarity with the near-photographic quality of continuous-tone output becomes more widespread, users will no longer be satisfied with the dot-ridden output of other color technologies. The definition of *acceptable* is about to change.

The Technology

A non-continuous-tone printer creates patterns of cyan, magenta, yellow, and black dots that fool your eye into seeing colors that aren't really there. A continuous-tone printer, as its name suggests, avoids this *dithering* process by blending the colors as they are printed, rather than making your brain perform the chore.

The Mitsubishi International CHC-S445, like most current continuous-tone printers, uses a technology called *dye sublimation*. Colored dyes, supplied on ribbons similar to those used in thermal-wax-transfer printers, vaporize when heated and blend when they are absorbed into the required special medium. Instead of the 300 *dots* per inch printed by thermal-wax-transfer and phase-change printers, the



Figure 1: The Mitsubishi International CHC-S445 produces stunning images of near-photographic quality.

CHC-S445 prints 300 *areas* per inch — and these areas blend seamlessly together.

How It Rates

The CHC-S445's Shinko print engine controls the amount of cyan, magenta, yellow, and black that is released into each area: either 64 or 256 levels per color. The 256-level option gives each pixel access to the 16.8 million colors that are available in a Mac with 32-bit QuickDraw, but it doubles the printing time. Although the CHC-S445 uses a powerful Am29000 RISC microprocessor, 256-level printing is slow when compared with RISC-based thermal-wax-transfer printing.

The CHC-S445's output is impressive — our jury rated it higher than

that of any other printer tested this month — but this printer suffers from the same handicap as did the two continuous-tone printers we've tested previously (the Mitsubishi Electronics S340-10, included in "Color on the Page" [May '90, Buyer's Guide page 56], and the Kodak XL 7700, reviewed in January '91 [page 62]): It was not designed expressly for the Mac. For example, the RISC-based *RIP* (raster-image processor) is in an external unit that includes a non-Mac-like 5.25-inch floppy-disk drive for upgrades to its PowerPage PostScript-clone interpreter, from Pipeline Associates.

On the Horizon

The CHC-S445's non-Mac lineage will become less of an issue later this year, when Mitsubishi International

Figure 2: Image Quality

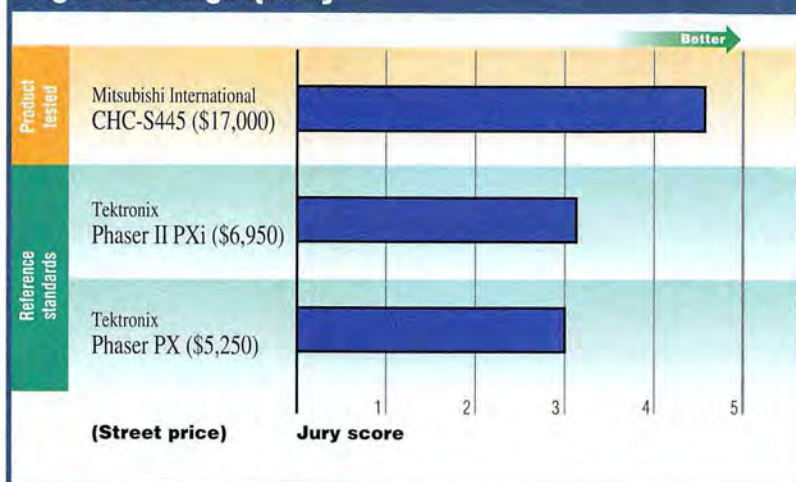


Figure 2: The quality of continuous-tone printing is impressive, but it doesn't come cheap. Our jury compared a set of output samples from the Mitsubishi International CHC-S445 with the same images printed by a Tektronix Phaser PX, a winner in our most recent comprehensive report on thermal-wax-transfer printers, and its newer sibling, the Tektronix Phaser II PXi. The Phaser PX's output was assigned a reference score of 3 in a scale that ranged from 1 to 5.

releases the CHC-S446i ColorStream/DS, which includes an internal RIP; slots for function cards such as a PowerPage PostScript-clone interpreter; and automatic emulation switching among Centronics, RS-232, and AppleTalk ports (an optional TCP/IP Ethernet port is also planned).

The ColorStream/DS will have plenty of competition. The RISC-based RasterOps CorrectPrint 300 will include two Ethernet ports — 10BASE-T and thick coaxial — along with AppleTalk and serial ports. It will list for \$10,999 — but without

RAM. At current prices, you'll spend more than \$1,000 extra to supply it with the recommended 36 megabytes of RAM.

The RISC-based GCC ColorTone, also targeted at the \$10,000 level, will include 10 megabytes of RAM and a 100-megabyte internal hard drive that will store fonts, allow easy upgrades to its PhoenixPage PostScript-clone interpreter, and provide full-page buffering.

Mitsubishi International's sibling rival, Mitsubishi Electronics, has announced the DiamondColor Print 300. This \$14,995 unit is promised to print faster than its competition and will include 32 megabytes of RAM, a full-page buffer, and front-panel-operated color-correction capability.

Kodak's hefty XL 7700 is being upgraded to the XLT 7720. The unit will be able to produce better transparencies and will have improved memory management, a Photoshop plug-in, a Chooser-level driver, and a proprietary PostScript-clone interpreter. Seiko also is planning to introduce a \$19,999 QuickDraw-based model, the ColorPoint SSC.

The Bottom Line

Printers, such as the Mitsubishi International CHC-S445, that use dye-sublimation-technology are making continuous-tone printing the new

Table 1: Features

	Mitsubishi International CHC-S445
	\$\$\$½
List price	\$18,750
Street price	\$17,000
Pros	High-resolution continuous-tone process provides near-photo-quality output. Small footprint. 24-bit palette.
Cons	Expensive. Five dollars per page. External processor required for PostScript. (New model scheduled for midyear with PostScript clone on add-in card and automatic port switching.)
Company	Mitsubishi International Corp. 701 Westchester Ave. White Plains, NY 10604 (914) 997-4999

standard for high-end presentations and publishing proofs. Although the CHC-S445 has its strengths, we recommend that you wait for one of the many new continuous-tone printers before making a choice. Competition is about to heat up, and when it does, prices usually drop.

— Rik Myslewski

Figure 3: Output Samples



The sample on the right shows how closely a continuous-tone print resembles a 2,540-dpi Linotronic image (left).

SuperMac Announces More Bang For Less Bucks.

For the past year, SuperMac™ cards and displays have been blasting the reviewers out of their seats—with record-setting performance and quality. But there's been one last barrier to shatter: *price*. Get set for the explosion! We've just lowered our prices by as much as 40%, so you can put SuperMac's award-winning products to work—now—in color publishing, digital video, and business productivity. More than ever before, SuperMac is the industry's price/performance leader; the *one* name that stands for **color ... speed ... power ... and affordability!** For the location of your nearest SuperMac reseller, call: **1-800-334-3005** or **408-773-4498** (outside U.S.).

Acclaim From Industry Experts

"SuperMac's Thunder" board is consistently the fastest we've seen...the undisputed champ...overall rating is excellent."

MacWEEK Review

"The editor's choice: 21" SuperMatch™ display with a Spectrum/24™ PDQ board or, better yet, the super-fast Thunder/24™."

Macworld Magazine

"Best Products of 1991 Award: Thunder/24 from SuperMac."

Byte Magazine

SuperMac	Old Price	New Price	Competition
Graphics Cards			
SuperMac Thunder/24	\$4,999	\$3,499	— No Competition
Spectrum/24 PDQ Plus	\$3,999	\$2,399	\$3,499 RasterOps 24XLi
Spectrum/24 Series III	\$2,499	\$1,699	\$1,999 Radius PrecisionColor 24X
Spectrum/24	New	\$1,199	— No Competition
Spectrum/8•24™ PDQ	\$1,399	\$ 999	\$1,499 RasterOps 8XLi
Color Displays			
SuperMatch 21" Two-Page	\$4,400	\$3,649	\$4,499 RasterOps 21" Color Monitor
SuperMatch 20" Trinitron®	\$4,200	\$2,999	\$4,299 RasterOps 19" Color Trinitron®
SuperMatch 20"	\$2,800	\$1,999	\$2,499 Radius PrecisionColor Display/19
SuperMatch 17"	New	\$1,199	\$1,549 Radius Color Pivot

 **SUPERMAC™**
The SuperSource for Color

©1992 SuperMac Technology. All rights reserved. SuperMac, SuperMac Technology, SuperMac Thunder, SuperMac Thunder/24, SuperMatch, Spectrum/8•24, and Spectrum/24 are trademarks of SuperMac Technology. Trinitron is a registered trademark of Sony Corporation. All other brand or product names are the trademarks of their respective holders. All prices are U.S. suggested. *Published prices as of January 15, 1992.

CIRCLE 131 ON READER SERVICE CARD.

Color Directory

Calibration Systems

Electronics for Imaging, Inc.
950 Elm Avenue
San Bruno, CA 94066
(415) 742-3400
Cachet, \$595

Pantone, Inc.
55 Knickerbocker Road
Moonachie, NJ 07074
(201) 935-5500
Broadcast Color System, \$995
Process Color Imaging Guide, \$75
Process Color System, \$75
Professional Color Toolkit, free on CompuServe

Radius, Inc.
1710 Fortune Drive
San Jose, CA 95131
(800) 227-2795
(408) 434-1010
PrecisionColor calibrator, \$599

RasterOps
2500 Walsh Avenue
Santa Clara, CA 95051
(800) 729-2656
(408) 562-4200
Color Transform Engine card, \$4,999
CorrectColor Calibrator, \$2,999
CorrectColor Management System software, \$999

Savitar
139 Townsend Street
Suite 203
San Francisco, CA 94107
(415) 243-3030
ScanMatch for Flatbed Scanners, \$199
ScanMatch for Slide Scanners, \$1,500

SuperMac Technology
485 Potrero Avenue
Sunnyvale, CA 94086
(800) 334-3005
(408) 245-2202
SuperMatch Professional Color Matching System, \$599

Technical Publishing
2205 Sacramento Street
San Francisco, CA 94115
(415) 921-8509
Color Calibration Software, \$695

Tektronix, Inc.
P.O. Box 1000, MS#63-630
Wilsonville, OR 97070
(800) 835-6100
(503) 627-7111
TekColor for the Macintosh, \$50

Digital Cameras

Eastman Kodak Co.
343 State Street
Rochester, NY 14650
(800) 242-2424
(716) 724-4000
Digital Camera System, \$19,995 to \$24,995

Sony Corp.
Sony Drive
Park Ridge, NJ 07656
(201) 930-6432
DIH-2100 Still-Video Transceiver, \$13,495
Media Mover Mac-Input Module, \$1,500
ProMavica still-video cameras, \$3,095 to \$7,150

Display Systems

Apple Computer
20525 Mariani Avenue
Cupertino, CA 95014
(800) 776-2333
(408) 996-1010
Apple 16" Display, \$1,599
Apple 21" Display, \$4,599
AppleColor 13" Display, \$999
Macintosh Display Card 8•24, \$699
Macintosh Display Card 8•24 GC, \$1,499

CalComp, Inc.
2411 W. La Palma Avenue
Anaheim, CA 92801
(800) 225-2667
(714) 821-2000
DrawingCard ChromaVision Plus, \$6,995
DrawingCard ChromaVision QuickPlus, \$8,595

E-Machines, Inc.
9305 S.W. Gemini Drive
Beaverton, OR 97005
(800) 344-7274
(503) 646-6699
ColorPage E16/Futura SX system, \$2,890
ColorPage T16/Futura SX system, \$3,795
ColorPage T16II/Futura SX (dual-mode) system, \$3,995
E-Machines T19/Futura MX system, \$5,745
E-Machines TX/Futura MX system, \$4,495

Generation Systems, Inc.
2648 Patton Road
St. Paul, MN 55113
(800) 325-5811
(612) 633-5222
Generation Systems 24-Bit Color Display, \$5,495

Infotronic America
8834 N. Capital of Texas Highway, Suite 200
Austin, TX 78759
(512) 345-9646
Info Mac 3224, \$3,995

Mass Microsystems, Inc.
810 W. Maude Avenue
Sunnyvale, CA 94086
(800) 522-7979
(408) 522-1200
Rival 19" monitor, \$4,448

Mirror Technologies, Inc.
2644 Patton Road
Roseville, MN 55113
(800) 654-5294
(612) 633-4450
Mirror 16" Trinitron System, \$2,299
Mirror ProView 24-bit Display System, \$2,999
Mirror ProView V/24 (Hitachi), \$2,399

Mitsubishi Electronics America
5665 Plaza Drive
Cypress, CA 90630
(800) 843-2515
(714) 236-6352
DiamondPro 14 auto-scan monitor, \$839
DiamondPro 20 auto-scan monitor, \$3,500
DiamondPro 37 auto-scan monitor, \$9,995
DiamondScan 16 auto-scan monitor, \$1,499
DiamondScan 37 auto-scan monitor, \$7,599

Nanao USA Corp.
23535 Telo Avenue
Torrance, CA 90505
(800) 800-5202
(310) 325-5202
FlexScan 6500, \$1,899
FlexScan 9065S, \$899
FlexScan F550i, \$1,749
FlexScan F750i, \$3,299
FlexScan T560, \$2,699
FlexScan T660i, \$3,999

NEC Technologies, Inc.

1414 Massachusetts Avenue
Boxborough, MA 01719
(800) 632-4636
(508) 264-8000

MultiSync 3FGx 15" monitor,
\$799

MultiSync 4FG 15" monitor,
\$949

MultiSync 5FG 17" monitor,
\$1,699

MultiSync 6FG 21" monitor,
\$3,499

Nissei Sangyo America/
Hitachi

800 South Street
Waltham, MA 02154
(800) 441-4832
(617) 893-5700

SuperScan CM1584MU 15"
monitor, \$795

SuperScan CM1785MU 17"
monitor, price unavailable at
press time

SuperScan CM2085 20"
monitor, \$1,995

SuperScan Pro CM2087MU
20" monitor, \$3,295

SuperScan Pro CM2187MU
21" monitor, \$3,995

**PCPC (Personal Computer
Peripherals Corp.)**

4710 Eisenhower Blvd.
Bldg. A4

Tampa, FL 33634
(800) 622-2888
(813) 884-3092

PCPC 24-bit system, \$3,995

Qume Corp.

260 S. Milpitas Blvd.
Milpitas, CA 95035
(408) 942-4000

QM835 Color 14" monitor,
\$649

Radius, Inc.

1710 Fortune Drive
San Jose, CA 95131
(800) 227-2795
(408) 434-1010

Color Pivot monitor, \$1,549

DirectColor/GX, \$795

PrecisionColor 24X interface
card, \$1,999

PrecisionColor Display/19

monitor, \$2,499

PrecisionColor Display/20

monitor, \$3,299

PrecisionColor Display/21

monitor, \$3,699

RasterOps

2500 Walsh Avenue
Santa Clara, CA 95051
(800) 729-2656
(408) 562-4200

1960B 19" Trinitron monitor,
\$4,299

1960H 19" Hitachi monitor,
\$2,799

2075 20" Trinitron Dual-Sync
monitor, \$4,299

2168 21" monitor, \$4,499

ColorPaint 24 card, \$1,999

ProColor 32 card, \$4,999

RasterOps 24Sx card, \$999

Sweet 16 display system,
\$2,499

Relax Technology, Inc.

3101 Whipple Road, Suite 22
Union City, CA 94587
(510) 471-6112

Relax Ikegami CN20, \$1,499

Relisys

320 S. Milpitas Blvd.
Milpitas, CA 95035
(408) 945-9000

RE-1422 Monitor, \$745

**Samsung Information
Systems**

3655 N. First Street
San Jose, CA 95134
(800) 446-0262
(408) 434-5482

SyncMaster 4, \$1,299

Seiko Instruments USA, Inc.

1130 Ringwood Court
San Jose, CA 95131
(408) 922-5900

CM 1445, \$749

CM 1760LR, \$1,599

Sigma Designs

47900 Bayside Parkway
Fremont, CA 94538
(510) 770-0100

Sigma Designs ColorMAX 24
system, \$6,690

SuperMac Technology

485 Potrero Avenue
Sunnyvale, CA 94086
(800) 334-3005
(408) 245-2202

SuperMatch 17" Color
Display, \$1,199

SuperMatch 20" Color
Display, \$1,999

SuperMatch 20" Trinitron,
\$2,999

SuperMatch 21" Two-Page,
\$3,649

Truevision

7340 Shadeland Station
Indianapolis, IN 46256
(317) 841-0332

NuVista+ card (with 4 MB of

RAM), \$4,795

TVM

1109 W. Ninth Street
Upland, CA 91786
(714) 985-4788

MediaScan 6A+ monitor,
\$1,395

Film Recorders
Agfa Division of Miles, Inc.

200 Ballardvale Street
Wilmington, MA 01887
(800) 227-2780
(508) 658-5600

Forte, \$33,500

PCR II, \$13,500

ProColor Premier, \$7,500

SlideWriter, \$9,000

GCC Technologies, Inc.

580 Winter Street
Waltham, MA 02154
(800) 422-7777
(617) 890-0880

ColorFast, \$5,999

General Parametrics Corp.

1250 Ninth Street
Berkeley, CA 94710
(800) 223-0999
(510) 524-3950

Spectra*Star 450 Printer/
Recorder, \$14,990

Hyphen

187 Ballardvale Street
Wilmington, MA 01887
(508) 988-0880

Spectra-Sell, \$17,000

Lasergraphics

20 Ada Avenue
Irvine, CA 92718
(714) 727-2651

Lasergraphics Film

Recorder, \$8,750

Lasergraphics Film Recorder
Plus, \$13,750

Management Graphics

1401 E. 79th Street
Minneapolis, MN 55425
(612) 854-1220

Solitaire Film Recorders,
\$25,000 to \$75,000

Mirus Industries Corp.

758 Sycamore Drive
Milpitas, CA 95035
(800) 942-9770
(408) 944-9770

Mirus FilmPrinter Turbo II,
\$8,590

Polaroid

575 Technology Square
Cambridge, MA 02139
(800) 225-1618
(617) 577-2000

CI-5000 Color Film Recorder,
\$5,995

A SEQUEL WITHOUT EQUAL

Volume Two Now Available

Digital Color Prepress—Volume Two is the second book in Agfa's educational series on color prepress. Containing all new information on a variety of topics, *Volume Two* is identical in style, approach, and educational value to its highly successful companion book,

An Introduction to Digital Color Prepress (now over 200,000 copies in print in six languages.)

The new book consists of 32 pages of the latest information on subjects like

scanners, color correction, calibration, file formats, screen angles, and much more. Filled with comparative halftone images, illustrations, and charts, *Volume Two* is an indispensable tool for anyone working in the desktop color world.

And it's available now for \$10.00, plus \$2.50 shipping and handling (and applicable sales tax).

For a limited time, you can buy both *Volume One* and *Two* for only \$16.50, which includes all shipping and handling charges.

To order, call 1-800-395-7007.
MasterCard and Visa accepted.

Or send payment to:
Agfa Prepress Education Resources
P.O. Box 7917
Mt. Prospect, IL 60056-7917
Please allow 10-14 days for delivery.
Call for quantity discount rates.



AGFA 

Presentation

Technologies, Inc.
779 Palomar Avenue
Sunnyvale, CA 94086
(800) 782-2543
(408) 730-3700
Montage FR1, \$5,995

Prime Option

2341 W. 205th Street
Suite 116
Torrance, CA 90501
(800) 828-9877
(310) 618-0274
Vérité, \$4,995

Visual Business

Systems, Inc.
380 Interstate N. Parkway
Suite 190
Atlanta, GA 30339
(404) 956-0325
POM/PS1 Production
(software PostScript
interpreter), \$895
POM/PS2 Production
(software PostScript
interpreter), \$2,750

Video Accelerators

Apple Computer
20525 Mariani Avenue
Cupertino, CA 95014
(800) 776-2333
(408) 996-1010
Macintosh Display Card
8•24 GC, \$1,499

CalComp, Inc.

2411 W. La Palma Avenue
Anaheim, CA 92801
(800) 225-2667
(714) 821-2000
DrawingCard ChromaVision
QuickPlus card, \$4,995

CYMaKolor Technologies

950 N. Rengstorff, Suite D
Mountain View, CA 94043
(415) 968-9336
CYMaKolor Process Board,
\$4,975

E-Machines, Inc.

9305 S.W. Gemini Drive
Beaverton, OR 97005
(800) 344-7274
(503) 646-6699
ColorLink SX/T, \$1,495
Futura/EX, \$795
Futura/MX, \$1,995
Futura/SX, \$1,295

Generation Systems, Inc.

2648 Patton Road
St. Paul, MN 55113
(800) 325-5811
(612) 633-5222
Designer 24, \$1,995

Radius, Inc.

1710 Fortune Drive
San Jose, CA 95131
(800) 227-2795
(408) 434-1010
PrecisionColor 24x interface,
\$1,999
QuickColor, \$795
QuickColor Graphics
Accelerator (not including
video card), \$395
Radius QuickCAD Graphics
Engine, \$1,495
Radius QuickColor Graphics
Engine, \$595

RasterOps

2500 Walsh Avenue
Santa Clara, CA 95051
(800) 729-2656
(408) 562-4200
RasterOps 24XLi, \$2,499
RasterOps 24XLTV, \$2,999
RasterOps Accelerator 801,
\$499

SuperMac Technology

485 Potrero Avenue
Sunnyvale, CA 94086
(800) 334-3005
(408) 245-2202
Spectrum/24 PDQ, \$999
Spectrum/24 PDQ Plus,
\$2,399
Spectrum/24 Series III,
\$1,699
SuperMac Thunder/24,
\$3,499

Image-Editing Software

Adobe Systems

1585 Charleston Road
P.O. Box 7900
Mountain View, CA 94039
(800) 833-6687
(415) 961-4400
Photoshop, \$895

Aldus Corp.

411 First Avenue S.
Seattle, WA 98104
(800) 333-2538
(206) 628-2320
Aldus Gallery Effects —
Volume 1: Classic Art, \$199
Digital Darkroom, \$395

DTI (Digital Technology International)

500 W. 1200 S.
Orem, UT 84058
(801) 226-2984
SpeedSep, \$4,995

Evergreen Technologies, Inc.

Diamond Farm Office Park
849-M Quince Orchard Blvd.
Gaithersburg, MD 20878
(301) 948-1800
MedVision, \$895 per module

Fractal Design Corp.

101 Madeline Drive, Suite 204
Aptos, CA 95003
(408) 688-8800
ColorStudio (includes
Shapes), \$795

Leaf Systems, Inc.

250 Turnpike Road
Southboro, MA 01772
(508) 460-8300
Photone Pre-Press, \$1,995

MediaLab Technologies

1166-F Triton Street
Foster City, CA 94404
(415) 345-4620
PictureAccess, \$295

Olduvai Corp.

7520 Red Road, Suite A
South Miami, FL 33143
(800) 822-0772
(305) 665-4665
VideoPaint, \$495

Pre-Press Technologies

2443 Impala Drive
Carlsbad, CA 92008
(619) 931-2695
SpectreTouch, price
unavailable at press time

Ray Dream, Inc.

1804 N. Shoreline Blvd.
Mountain View, CA 94043
(415) 960-0765
JAG (Jaggies Are Gone),
\$99.95

Spectral Innovations

4633 Old Ironsides Drive
Suite 450
Santa Clara, CA 95054
(408) 727-1314
Lightning Effects (DSP card
and software), \$1,295

Painting Software

Aldus Corp.

411 First Avenue S.
Seattle, WA 98104
(800) 333-2538
(206) 628-2320
SuperPaint, \$199

Delta Tao Software, Inc.

760 Harvard Avenue
Sunnyvale, CA 94087
(800) 827-9316
(408) 730-9336
Color MacCheese, \$99.95
Monet, \$399
Zeus, \$499

Deneba Software

3305 N.W. 74th Avenue
Miami, FL 33122
(800) 622-6827
(305) 594-6965
Canvas 3.0, \$399
UltraPaint, \$199


Electronic Arts

1450 Fashion Island Blvd.
San Mateo, CA 94404
(800) 245-4525
(415) 571-7171
Studio/32, \$695



New Low PRICES	
ScanMaker 1850	\$2,499
ScanMaker 1850S	\$2,699

Microtek removes the biggest barrier to owning a Slide Scanner



If price has been the barrier separating you from high quality color scanning, take a look at the ScanMaker 1850.

Another stunning price breakthrough from Microtek, the leader in affordable color scanning solutions.

The ScanMaker 1850 sports a formidable set of specs. 35 x 35mm scanning area. 24-bit color. 8-bit gray-scale. 1850 dpi resolution.

Best of all, it's so easy to use. Just drop in any slide and you're ready to start scanning.

The ScanMaker 1850 gives you everything you need to go from comps to final color separations. It even comes bundled

with PhotoStyler for the PC or Adobe Photoshop for the Mac.

But wait, it looks even better when you see the price. Just \$2,499 for the ScanMaker 1850 on the PC. And only \$2,699 for the Mac compatible ScanMaker 1850S.

Call 1-800-654-4160 or 213-321-2121 in California for the name of the Microtek authorized dealer nearest you.

Because the only barrier between you and a 35mm color scanner now is a toll-free phone call.

24
Color
1850
DPI



The ScanMaker 1850 is just one member of a whole family of affordable desktop peripherals available from Microtek.



MICROTEK
Better Images Through Innovation.

Fractal Design Corp.

101 Madeline Drive, Suite 204
Aptos, CA 95003
(408) 688-8800
Painter 1.2, \$349

MECC

6160 Summit Drive N.
Minneapolis, MN 55430
(800) 685-6322
(612) 569-1500
Easy Color Paint, \$89

MicroFrontier

3401 101st Street, Suite E
Des Moines, IA 50322
(800) 388-8109
(515) 270-8109
Color III, \$119.95

Microlutions, Inc.

13464 Washington Blvd.
Marina del Rey, CA 90291
(310) 822-9200
Photon Paint, \$149.95

SuperMac Technology

485 Potrero Avenue
Sunnyvale, CA 94086
(800) 334-3005
(408) 245-2202
PixelPaint Professional, \$799

Time Arts

1425 Corporate Center
Parkway
Santa Rosa, CA 95407
(707) 576-7722
Oasis, \$795

Plotters
CalComp, Inc.

2411 W. La Palma Avenue
Anaheim, CA 92801
(800) 225-2667
(714) 821-2000
Pacesetter 2024, \$4,295
Pacesetter 2036, \$5,595

Hewlett-Packard Co.

19091 Pruneridge Avenue
Cupertino, CA 95014
(800) 752-0900
(408) 725-8900
Hewlett-Packard 7475/A-1,
\$1,995

Hewlett-Packard 7550/B-5,

\$4,795
Hewlett-Packard 7550/B-6,
\$4,495
Hewlett-Packard ColorPro
7440A-1, \$1,395

Raster Graphics, Inc.

285 N. Wolfe Road
Sunnyvale, CA 94086
(800) 441-4788
(408) 738-7800
ColorStation 422, \$18,500
ColorStation 424 CX, \$34,895
ColorStation 436 CX, \$44,895

**Roland Digital Group
America**

1961 McGaw Avenue
Irvine, CA 92714
(714) 975-0560
SketchMate, \$695

Printers
Color Laser Printers
Canon USA

One Canon Plaza
Lake Success, NY 11042
(516) 488-6700
PS-IPU RIP (for Canon Color
Laser Copier 500), \$25,000

Colorocs

2805 Peterson Place
P.O. Box 1828
Norcross, GA 30071
(404) 840-6500
Plain-Paper Full-Color
Printer, \$34,995

Eastman Kodak

343 State Street
Rochester, NY 14650
(800) 242-2424
(716) 724-4000
Kodak Ektaplus 7016, \$7,190

Electronics for Imaging, Inc.

950 Elm Avenue
San Bruno, CA 94066
(415) 742-3400
Fiery ColorLaser controller
(for Canon Color Laser Copier
500), \$34,999

Continuous-Tone Printers
DuPont

47 Farnsworth Street
Boston, MA 02210
(617) 338-2173
DuPont 4Cast, \$38,000

Eastman Kodak Co.

343 State Street
Rochester, NY 14650
(800) 242-2424
(716) 724-4000
Kodak P6600 Color Video
Printer, \$4,300
Kodak S6600 Color Video
Printer, \$4,300
Kodak XL 7700, \$19,770

Lasertechnics

5500 Wilshire Avenue N.E.
Albuquerque, NM 87113
(505) 822-1123
StarBurst Dual Mode Color
Printer, \$15,000

Mitsubishi Electronics

America
5665 Plaza Drive
Cypress, CA 90630
(800) 843-2515
(714) 236-6352
Mitsubishi S340-10, \$13,995

Mitsubishi International Corp.

701 Westchester Avenue
White Plains, NY 10604
(914) 997-4999
CHC-S445, \$18,750

Nikon

1300 Walt Whitman Road
Melville, NY 11747
(800) 645-6687
(516) 547-4355
CP3000, \$13,595

Prime Option

2341 W. 205th Street
Suite 116
Torrance, CA 90501
(800) 828-9877
(310) 618-0274
ColorRight, \$15,000
ColorView Plus, \$12,995

RasterOps

2500 Walsh Avenue
Santa Clara, CA 95051
(800) 729-2656
(408) 562-4200
RasterOps CorrectPrint 300,
\$10,999

Inkjet Printers
Canon USA

One Canon Plaza
Lake Success, NY 11042
(516) 488-6700
BJC-800 Bubblejet, \$2,795
BJC-820 Bubblejet, \$2,995

Eastman Kodak Co.

343 State Street
Rochester, NY 14650
(800) 242-2424
(716) 724-4000
Diconix Color 4, \$1,595

Hewlett-Packard Co.

19091 Pruneridge Avenue
Cupertino, CA 95014
(800) 752-0900
(408) 725-8900
Hewlett-Packard
DeskWriter C, \$1,095
Hewlett-Packard PaintJet XL,
\$2,495; **Mac PrintKit**
(required), \$125
Hewlett-Packard PaintWriter,
\$1,095
Hewlett-Packard
PaintWriter XL, \$2,595

Iris Graphics

6 Crosby
Bedford, MA 01730
(617) 275-8777
Iris 3024, \$84,500
Iris 3047, \$123,500
SmartJet 4012, \$39,000

Sharp Electronics Corp.

Sharp Plaza
Mahwah, NJ 07430
(800) 237-4277
(201) 529-8200
Sharp JX-730 Color Ink Jet,
\$1,995; cut-sheet feeder,
\$480; paper-roll feeder, \$40

Think MicroNet...



...When You Need the Highest Performance From the Quadra 700 and Quadra 900 - Nothing's More Powerful Than Our Data Storage Solutions.

If you're looking for the most powerful hard disk, rewritable optical, and tape backup systems for the Apple Quadra, we invite you to think MicroNet.

Think of our RAVEN-040 disk arrays when you need up to 4,260 MB of unbelievably fast hard disk storage. With 7.0 MB/sec sustained transfers and a significantly reduced access time of 5.5 ms, it's no wonder RAVEN-040 is the MacUser Eddy Award winner for the Best Storage Product of 1991.

What's more, the RAVEN-040 uses both high performance SCSI ports of the Quadra 900, leaving all five NuBus slots open for other devices.

Think of our internal rewritable optical systems when you want removable storage for the Quadra 900.

MicroNet's new 3.5" optical drive has a fast access time of 38 ms. And it lets you affordably store 128 MB of data on a shirt-pocket-size disk.

Think of MicroNet's single hard drive systems for the Quadra 700 and 900 when you need up to 2,130 MB of reliable SCSI data storage. And if it's removable cartridge drives or tape backup you're looking for, MicroNet offers 44 and 88 MB SyQuest cartridge systems, and streaming tape and DAT backup to 5.0 GB.

So when you need the most powerful hard disk and removable data storage systems for the Quadra 700 and 900, think MicroNet.

Call our Sales Department today for the name of a Reseller near you. 1-714-837-6033.



MicroNet Technology, Inc.

20 MASON • IRVINE, CA 92718 • TEL: (714) 837-6033 • FAX: (714) 837-1164
AppleLink: MICRONET.SLS • Compuserve: 76004,1611

RAVEN-040 is a trademark of MicroNet Technology, Inc. All other trademarks are property of their respective owners.

CIRCLE 138 ON READER SERVICE CARD.

Tektronix, Inc.

P.O. Box 1000, MS#63-630
Wilsonville, OR 97070
(800) 835-6100
(503) 627-7111

**Tektronix 4694DX Color
Image Printer** (5-MB
configuration), \$9,290

Tektronix ColorQuick, \$2,495;
optional tractor feeder, \$300

Phase-Change Printers**Dataproducts Corp.**

6219 DeSoto Avenue
Woodland Hills, CA 91365
(818) 887-8000
Jolt PS, \$6,995

Tektronix, Inc.

P.O. Box 1000, MS#63-630
Wilsonville, OR 97070
(800) 835-6100
(503) 627-7111
Phaser III PXi, \$9,995

**Thermal-Wax-Transfer
Printers****Agfa Compugraphic**

200 Ballardvale Street
Wilmington, MA 01887
(800) 227-2780
(508) 658-5600

MaxiColor, \$5,950; Mac
compatibility kit (required),
\$595

CalComp

2411 W. La Palma Avenue
Anaheim, CA 92801
(800) 225-2667
(714) 821-2000

ColorMaster Plus PS-6603
(letter-sized model), \$5,495

ColorMaster Plus PS-6613
(tabloid-sized model), \$9,995

ColorMaster Presenter,
\$2,975

General Parametrics Corp.

1250 Ninth Street
Berkeley, CA 94710
(800) 223-0999
(510) 524-3950

Spectra*Star series, \$4,995
to \$14,990

Mitsubishi Electronics**America**

5665 Plaza Drive
Cypress, CA 90630
(800) 843-2515
(714) 236-6352
Mitsubishi G370-10, \$5,495

Mitsubishi International Corp.

701 Westchester Avenue
White Plains, NY 10604
(914) 997-4999
CHC series, \$4,500 to \$8,250

NEC Technologies, Inc.

1414 Massachusetts Avenue
Boxborough, MA 01719
(800) 632-4636
(508) 264-8000

NEC Colormate PS Model 40,
\$5,899

NEC Colormate PS Model 80,
\$7,599

Océ Graphics USA, Inc.

P.O. Box 7169
Mountain View, CA 94039
(800) 545-5445
(415) 964-7900
**OcéColor PostScript Printer
series**, \$6,990 to \$15,990

Panasonic

Two Panasonic Way
Secaucus, NJ 07094
(800) 742-8086
(201) 348-7000
EPL-8541 (RGB), \$8,995
EPL-8543, \$7,995

Prime Option

2341 W. 205th Street
Suite 116
Torrance, CA 90501
(800) 828-9877
(310) 618-0274
ColorPage, \$4,995
ColorPage Plus, \$8,995
ColorView, \$7,995

QMS, Inc.

One Magnum Pass
Mobile, AL 36618
(800) 523-2696
(205) 633-4300
**QMS ColorScript 100
Model 10**, \$6,995
**QMS ColorScript 100
Model 30i**, \$9,995
QMS ColorScript Model 10p,
\$5,995
QMS ColorScript Model 30si,
\$11,995

RGB Technology, Inc.

6862 Elm Street, Suite 210
McLean, VA 22101
(703) 556-0666
CB3404, \$6,995
CB3414, \$9,995

Seiko Instruments USA, Inc.

1130 Ringwood Court
San Jose, CA 95131
(408) 922-5900
ColorPoint PostScript series,
\$5,999 to \$15,399
Personal ColorPoint, \$3,999
**Personal ColorPoint
PostScript series**, \$4,999 to
\$7,499

Tektronix, Inc.

P.O. Box 1000, MS#63-630
Wilsonville, OR 97070
(800) 835-6100
(503) 627-7111
Phaser II PX, \$5,995
Phaser II PXi, \$7,995
Phaser II SX, \$5,290

Toyo

2934 Corvin Drive
Santa Clara, CA 95051
(408) 720-8877
Toyo TPG-4300/MP, \$10,500

Scanners**Drum Scanners****Danagraf North America, Inc.**

3456 Lindell Blvd.
St. Louis, MO 63103
(314) 535-8807
ScanMate, \$29,995

Howtek, Inc.

21 Park Avenue
Hudson, NH 03051
(800) 444-6983
(603) 882-5200
Scanmaster D4000, \$39,700

Optronics

7 Stuart Road
Chelmsford, MA 01824
(508) 256-4511
ColorGetter, \$65,000
ColorGetter Plus, \$75,000

Pre-Press Technologies

2443 Impala Drive
Carlsbad, CA 92008
(619) 931-2695
SpectreLink, \$29,995

Flatbed Scanners**Abaton (Everex Systems)**

48431 Milmont Drive
Fremont, CA 94538
(800) 444-5321
(510) 683-2226
Abaton Scan 300/Color,
\$1,995

**Advanced Vision
Research, Inc.**

2201 Qume Drive
San Jose, CA 95131
(408) 434-1115
AVR 3000/CL Plus, \$1,890
AVR 8000/CLX, \$2,190
AVR 8000/GSX, \$1,690

Epson America, Inc.

20770 Madrona Avenue
Torrance, CA 90503
(800) 922-8911
(310) 782-0770
Epson ES-300C, \$2,294

Fujitsu America, Inc.

2904 Orchard Parkway
San Jose, CA 95134
(800) 626-4686
(408) 432-1300
Fujitsu M3296, \$6,995 to
\$8,995

Hewlett-Packard Co.

19091 Pruneridge Avenue
Cupertino, CA 95014
(800) 752-0900
(408) 725-8900
ScanJet IIC C1759A, \$1,995

See gorgeous color.

Print gorgeous color.



If you've ever wished you could afford to print in vivid color, the new Canon Color Bubble Jet™ printers are for you.

The first thing you'll notice is the brilliant, rich color. That's because both the BJC-800 and the BJC-820 print up to 360 dpi using four snap-in ink cartridges: black, cyan, magenta, and yellow. So you get true black and richer darker shades.

You'll also admire these printers' versatility. They print on virtually any size plain paper up to 11" by 17", on transparencies and envelopes.

Now you can be as creative as you want, preparing stunning presentations, graphics, even posters, right in your office. You'll be able to see results and make changes immediately, which saves time and gives you more control.

All these advantages are yours whether you use an IBM® PC or a Macintosh®, because the BJC-800 has a parallel interface and the BJC-820 has a SCSI interface.

You'll even be impressed with the cost. Both printers are a lot less than you'd expect, and the cost per page is remarkably low when compared with most other color printers.

Simply call 1 (800) 848-4123, and see how easily you can afford to improve your image.



Canon
COLOR BUBBLE JET PRINTERS
BJC-800/BJC-820

Canon® and BJ® are registered trademarks and Bubble-Jet is a trademark of Canon Inc. Macintosh® is a registered trademark of Apple Computer, Inc. IBM® is a registered trademark of International Business Machines Corp. © 1991 Canon U.S.A., Inc.

CIRCLE 20 ON READER SERVICE CARD.

Howtek, Inc.

21 Park Avenue
Hudson, NH 03051
(800) 444-6983
(603) 882-5200

Howtek Personal Color Scanner, \$1,295

Howtek Scanmaster 3, \$8,195

Howtek Scanmaster 3+, \$9,195

HSD Microcomputer U.S.

1350 Pear Avenue, Suite C
Mountain View, CA 94043
(415) 964-1400

Scan-X Color, \$2,995

La Cie Ltd.

19552 S.W. 90th Court
Tualatin, OR 97062
(800) 999-0143
(503) 691-0771

La Cie Silverscanner, \$1,399

Marstek

15225 Alton Parkway
Irvine, CA 92718
(800) 366-4620
(714) 833-7740

MFS 3000CS 24-bit, \$1,495

MFS 6000CS 24-bit, \$1,895

Microtek Lab, Inc.

680 Knox Street
Torrance, CA 90502
(800) 654-4160
(213) 321-2121

Microtek ScanMaker 600ZS, \$2,995

Mirror Technologies, Inc.

2644 Patton Road
Roseville, MN 55113
(800) 654-5294
(612) 633-4450

Mirror 600 Color Scanner, \$1,397

Mouse Systems

47505 Seabridge Drive
Fremont, CA 94538
(510) 656-1117

Synergizer-2, \$1,995

Polaroid

575 Technology Square
Cambridge, MA 02139
(800) 225-1618
(617) 577-2000

CS500 Digital Photo Scanner, \$3,995

Prime Option

2341 W. 205th Street
Suite 116
Torrance, CA 90501
(800) 828-9877
(310) 618-0274

Phovos-300C, \$1,495

Phovos-400C, \$5,495

Seiko Instruments USA, Inc.

1130 Ringwood Court
San Jose, CA 95131
(408) 922-5900

SpectraPoint, \$2,300

Sharp Electronics Corp.

Sharp Plaza
Mahwah, NJ 07430
(800) 237-4277
(201) 529-8200

Sharp JX-100, \$799

Sharp JX-320, \$1,895

Sharp JX-450, \$5,995

Tamarack Telecom, Inc.

2F, 20 Prosperity Road
Science-Based Industrial Park
Hsin-Chu, Taiwan, R.O.C.
886-35-780300

TTi 3000C, \$1,950

UMAX Technologies, Inc.

3170 Coronado Drive
Santa Clara, CA 95054
(800) 562-0311
(408) 982-0771

UC1200, \$5,995

UC630, \$1,995

X-Ray Scanner Corp.

4030 Spencer Street
Suite 101
Torrance, CA 90503
(310) 214-1900

6c OmniMedia, \$3,500

Hand-Held Scanners

Marstek

15225 Alton Parkway
Irvine, CA 92718
(800) 366-4620
(714) 833-7740

Langelo Color Handheld Scanner, \$695

Mouse Systems

47505 Seabridge Drive
Fremont, CA 94538
(510) 656-1117

True-Color Hand Scanner, \$899.95

Niscan, Inc.

1919 Old Denton Road
Suite 104
Carrollton, TX 75006
(214) 242-9696

Niscan Spectra Mac, \$995

Overhead Scanners

Chinon America, Inc.

660 Maple Avenue
Torrance, CA 90503
(800) 441-0222
(310) 533-0274

Chinon DS-3000, \$995

Truvel

520 Herndon Parkway
Herndon, VA 22070
(703) 742-9500

TruScan 3D Color Scanner, \$9,995

Slide Scanners

Agfa Compugraphic

200 Ballardvale Street
Wilmington, MA 01887
(800) 227-2780
(508) 658-5600

Agfa Focus Color Scanner, \$6,995

Array Technologies

401 Roland Way, Suite 150
Oakland, CA 94621
(510) 633-3000

Array (AS-1), \$20,000

Barneyscan Corp.

1125 Atlantic Avenue
Alameda, CA 94501
(510) 521-3388

Barneyscan 4520, \$27,995

Barneyscan CIS 3515, \$4,495

Hasselblad, Inc.

10 Madison Road
Fairfield, NJ 07004
(201) 227-7320

Macsie 35, \$12,400

Howtek, Inc.

21 Park Avenue
Hudson, NH 03051
(800) 444-6983
(603) 882-5200

Howtek Scanmaster 35/II, \$6,995

Leaf Systems, Inc.

250 Turnpike Road
Southboro, MA 01772
(508) 460-8300

Leafscan 35, \$9,995

Leafscan 45, \$22,995

Microtek Lab, Inc.

680 Knox Street
Torrance, CA 90502
(800) 654-4160
(213) 321-2121

Scanmaker 1850S, \$2,699

Nikon

1300 Walt Whitman Road
Melville, NY 11747
(800) 645-6687

(516) 547-4355

Nikon LS-3510AF, \$8,995

RasterOps

2500 Walsh Avenue
Santa Clara, CA 95051
(800) 729-2656
(408) 562-4200

Expresso Personal Slide Scanner, \$999

Scancorp (Scangraphic Ltd.)

8609 W. Bryn Mawr
Suite 208
Chicago, IL 60631

(312) 693-2900

Scantext 1015 CS (flatbed/slide), \$105,900

Sharp Electronics Corp.

Sharp Plaza
Mahwah, NJ 07430
(800) 237-4277
(201) 529-8200

Sharp JX-600, \$14,500



If there were a printer that could give you this kind of color, would you still make your presentations in black and white?

Do your business presentations go in one eye and out the other? The Colormate™ PS can easily and affordably give them the impact they deserve. Enhancing your work with truly amazing color, from brilliant primaries to soft pastels. All Pantone® approved.

The Colormate PS integrates readily with any network, PC or Mac. And it's compatible with most popular business presentation and graphics software. Of course, Adobe® PostScript® is standard. The Colormate PS comes in two

models—the economical Model 40 with 4MB of memory and 17 resident fonts, and the fully featured Model 80 with 8MB of memory and 35 resident fonts. Both feature reliable 300 DPI thermal transfer technology.

For your free Color Presentations Guide and more information, call 1-800-NEC-INFO. Or call NEC FastFacts, 1-800-366-0476, document #26567, for info via fax.

After all, the world isn't black and white, why should your presentations be?


© 1992 NEC Technologies, Inc. Colormate is a trademark of NEC Corporation. Adobe and PostScript are registered trademarks of Adobe Systems, Inc. Macintosh is a registered trademark of Apple Computer, Inc. Pantone is a registered trademark of Pantone, Inc.

C&C Computers and Communications

NEC

CIRCLE 142 ON READER SERVICE CARD.



This is your drive.



This is your drive on QuickSCSI.

Any questions?

If so, keep reading.

We know there's nothing like a bottleneck to slow down traffic.

So eliminate the Macintosh SCSI bottleneck with the QuickSCSI NuBus card and you could enjoy an increase in data transfer rates up to 300 percent. When you install QuickSCSI in your Mac II-series computer, you can reach data transfer rates up to 30 percent faster than the Quadra.

One backup you'll appreciate.

With QuickSCSI's disk mirroring, backups occur automatically and immediately on a second drive, so you don't have to worry about losing valuable data due to disk failure. You can even mirror up to three drives at once! Think of it as getting the performance of a Corvette for the cost of a Miata. In addition, most hard disk and removable media drives are supported.

Both internal and external drives can be connected to QuickSCSI, and an additional seven SCSI devices can be added for every QuickSCSI installed. And because QuickSCSI doesn't disable the Mac's existing SCSI port, up to 14 devices can be connected simultaneously.

PLI 240 3.5 DRIVE ON A MAC IIx

With QuickSCSI

Without QuickSCSI

0 500 1000 1500 2000
SUSTAINED READ (k/sec)

PLI's drives are supported by our toll-free technical support, 24-hour BBS, 30-day money-back guarantee and five-year warranty.

800-288-8754

Peripheral Land Incorporated
47421 Bayside Parkway • Fremont, CA 94538
510-657-2211 or Fax 510-683-9713

CIRCLE 181 ON READER SERVICE CARD.

The Most Trusted Name in Storage Solutions.



MUSE AD-27



RagTime has changed hands yet again — to MacVONK USA, a subsidiary of the Dutch company MacVONK. The document-processing program is being repositioned to cash in on the integrated-applications boom. The low-end RagTime Classic has been reborn as HandiWorks (an address-manager database was added), and System 7 Extensions for RagTime 3.1, the flagship product, should finally be released this spring. (403) 232-6545.

By Aileen Abernathy

Picture this: You drop off a roll of 35mm film for developing and request a set of prints on paper — and on CD. You read right: For around \$20 for 24 exposures, many photo labs will soon be able to return photographs as “digital negatives” on a CD. The Photo CD system, from Eastman Kodak, may revolutionize the way we store and use photographs. You’ll be able to view the images on television, using a CD-I drive or a dedicated Photo CD player. Electronic publishers will be able to access the images with a CD-ROM XA drive, edit them, and place them in page layouts. Eventually, Photo CDs will also hold sound, graphics, and text, enabling you to produce complete (dare I say *multimedia*?) presentations. Each image will use **Kodak’s PhotoYCC** color-encoding scheme for storage and will be available in several resolutions: a thumbnail view for previewing, low- and medium-resolution images for viewing and manipulation, and high-resolution compressed files for photographic-quality work. To access and use the images, you’ll need a Photo CD-compliant application. Kodak is already marketing a \$695 developer toolkit; look for the first compatible products before the end of the year from companies such as Adobe and Aldus. For programs without built-in support, Kodak offers Photo CD Access, a \$150 utility for the Mac and Windows platforms that can open images and convert them to standard file formats. (716) 724-4000.



Palatable offering: Zephyr Palettes is a clever utility for PageMaker and FreeHand that eliminates endless trips to the Type menu. Implemented as an Addition in PageMaker 4.2 (or as a control panel/INIT in version 4.0), Zephyr Palettes lets you display as many as seven small floating palettes for font-related activities. Fonts are automatically grouped by family, and you can create custom font sets. The version for FreeHand 3.0 and 3.1 offers eight palettes, including pen width and special effects. Coolest feature: You can change the font size, leading, tracking, and pen width on the fly by scrolling down the palettes. \$79.95 per program, from Zephyr Design. (206) 324-0292.

Fearless fonts: Both Bitstream and Monotype now offer typeface packages for novice type users. Monotype’s Desktop Solutions series offers Type 1 fonts that are appropriate for reports and presentations, forms and catalogs, and newsletters and booklets. Each \$179 package includes an informative design guide, a publishing glossary, and a type-specimen book. (312) 855-1440. **Bitstream’s Type Essentials** series is similarly organized; each \$149 package contains Type 1 and TrueType versions of 13 Bitstream typefaces. A fourth package, Headlines (\$99), contains seven complementary display faces. (617) 497-6222.



Winning Combination!



Seagate

NuPORT and WrenRunner-2 Make MicroNet's SBT-1288NP MacUser Editors' Choice for Best Storage Product.

MicroNet's NuPORT and Seagate's high performance disc drives are a perfect match. Because when you put them together you get our award winning 1,288 MB system.

MicroNet splices two 644 MB Seagate WrenRunner-2 disc drives into one logical volume for ultra-fast seek times of 6 ms. Then we add our unique NuPORT, SCSI-2 NuBus accelerator for 3.1 MB/sec sustained data transfers. Seagate's 4,800 rpm fast spindle hard disc drives, and our popular NuPORT accelerator,

make a winning combination the Editors of MacUser call "the most capable storage system for servers and high-end workstations."



Put the MicroNet SBT-1288NP to work for you. Improve productivity, save valuable time, and increase profits. Because we're not the only ones who should be proud. You too can achieve award winning performance with the SBT-1288NP. Call our sales department today for more information and the name of a MicroNet Reseller near you. 1-714-837-6033.

Quality You Can Count On.



MicroNet Technology, Inc.

20 MASON • IRVINE, CA 92718 • TEL: (714) 837-6033 • FAX: (714) 837-1164
AppleLink: D1656 • Compuserve: 76004,1611

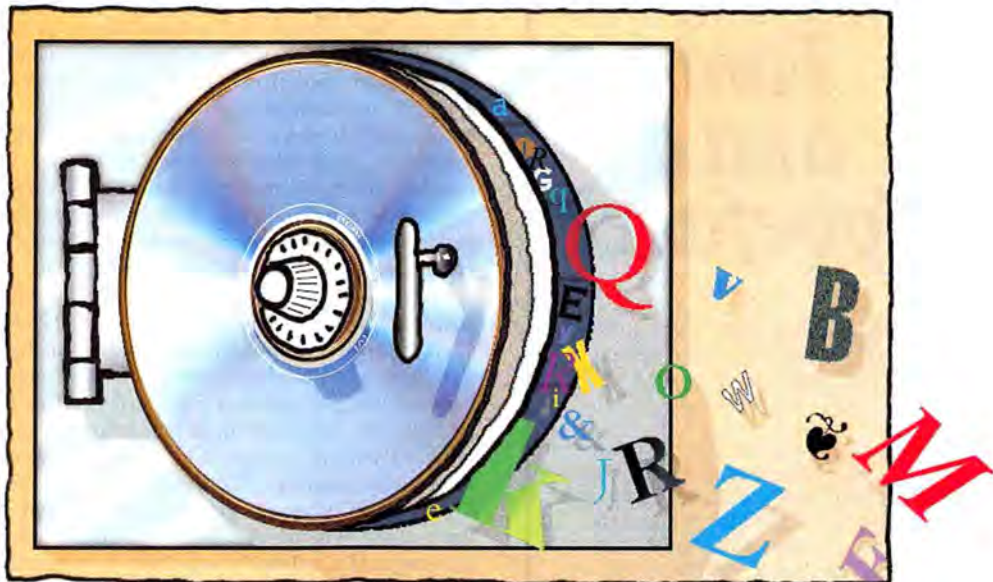
SBT-1288NP and NuPORT are registered trademarks of MicroNet Technology, Inc. WrenRunner-2, Seagate and the Seagate logo are registered trademarks of Seagate Technology, Inc.

CIRCLE 136 ON READER SERVICE CARD.

Fonts on Demand

Unlockable-font CD-ROMs give you instant access to entire type libraries at crowd-pleasing prices.

By Kathleen Tinkel



It sounds almost too good to be true: For less than \$100, most type foundries are selling a CD-ROM that contains their complete PostScript-typeface library. The catch: Only a few fonts are available at purchase time. The rest are hidden away until you call a toll-free number and trade your credit-card number for the access codes.

The technology underlying these unlockable-font CD-ROMs lets you have an entire font library at your fingertips without having to pay for it all at once. Adobe's Type On Call CD-ROM, for example, has a list price of \$99 and gives you immediate access to up to 26 "free" fonts. The rest of the Adobe Type Library is in encrypted form until you pay to unlock one or more typefaces. In comparison, Adobe's Font Folio provides the entire Adobe Type Library — already unlocked — on CD-ROM or hard disk, but it costs \$14,000.

Unlockable-font CD-ROMs are a good deal for users and vendors alike. For the vendor, the discs provide a highly efficient, cost-effective means of distributing type. A CD-ROM can store 650 megabytes of data — plenty of room even for a very large type collection. Users pay a minimal fee to gain virtually instant access to new fonts, often at discounted prices. Even the environment gets a break: Distributing a few CD-ROMs instead of many floppy disks saves a lot of plastic and packaging material.

Image Club Graphics was the first company to offer its typeface library on a CD-

ROM containing unlockable fonts, in 1989. It took a couple of years for CD-ROM drives to become affordable and for a healthy user base to develop, but most major foundries now offer their typeface collections on-disc.

At this writing, eight vendors — Adobe, Agfa, Bitstream, The Font Company, Image Club, Monotype, NEC, and URW — have introduced font CD-ROMs (see Table 1). Somewhat confusingly, these eight products represent four general font collections. Bitstream and Image Club sell their own libraries, and The Font Company and URW market different collections of URW fonts. The other four vendors sell the basic Adobe Type Library plus their own libraries, a combination commonly called the type consortium, because many of the fonts are cross-licensed by Adobe, Agfa, Linotype, Monotype, and Varityper.

If you own a CD-ROM drive, the low cost of unlockable-font discs may tempt you to buy a handful, putting the entire type libraries of several foundries at your disposal. In deciding which one(s) to buy, ask yourself some questions: What typefaces are on the CD-ROM? From which foundries? Are all the fonts in PostScript Type 1 format, or are TrueType faces also available? How much do individual typefaces cost? How easy is it to unlock fonts? How frequently is the disc upgraded to include newer typefaces? How good is the accompanying type catalog? What else is on the disc?

What's the Difference between a Font and a Typeface?

...And what's all this about PostScript[®] versus TrueType[®]? Is there a difference between tracking and kerning? What is an outline font, anyway?

At Altsys, we've spent the last 6+ years understanding and developing Macintosh[®] software for creating and editing type and fonts. And during that time, a special vocabulary has developed just for computer type. It's made up of new words and different uses of traditional typographical terms.

So, to help you understand fonts in this age of technology, we'd like to offer you a free copy of our booklet, **Type Terminology on the Desktop**. Just call us at the phone number and extension below or use the enclosed magazine reader reply card.



Remember, "When you need more than a pretty face, we're just your type!"

Altsys Corporation
269 W. Renner Road
Richardson, Texas 75080
Phone: (214) 680-2060, Ext. 687
Fax: (214) 680-0537



DESKTOP PUBLISHING TYPE

Available Typefaces

The discs from Bitstream, The Font Company, Image Club, and URW are the most straightforward of the unlockable-font CD-ROMs, because each contains the typeface library of a single font foundry. Although URW is a company unfamiliar to many American type buyers, it has converted traditional typefaces into digital form for most of the world's foundries. URW also functions as a foundry, creating original typefaces of its own, and it manufactures the Ikarus font-making tools used by many foundries to create typefaces. The Font Company and URW are each working from the same basic set of URW font outlines. The Font Company offers a broadly useful CD-ROM library of 1,600 fonts whereas URW has selected 500 typefaces for which it provides five additional PostScript variations — outline, in-line, relief, drop-shadow, and rounded. (The URW Type-Works CD-ROM was not shipping at press time, but it will be distributed by the company's U.S. office.)

Adobe, Agfa, Monotype, and NEC offer the Adobe Type Library on their discs. Adobe's library contains several faces cross-licensed from Agfa (Garth Graphic and Shannon, for example) and Monotype (Bembo, Gill Sans, and Plantin, for example). Adobe has made a few changes, such as renaming the fonts and adding kerned pairs. Because of these cross-

licensing agreements, there are two versions of some typefaces on the Agfa and Monotype discs. For instance, the Agfa-Type CD-ROM contains two versions of Garth Graphic: Agfa's and Adobe's. These typefaces are not identical; they have subtle differences that can affect how they look on a page. To minimize the confusion, Monotype is incorporating the Adobe versions into the Monotype library for the next version of its FoneFonts CD-ROM.

The only way to access the full Agfa and Monotype font libraries is from their CD-ROMs. Each company offers unique faces that Adobe has not yet licensed. For example, Agfa has a striking collection of 126 Pi and Symbol fonts, and Monotype includes a selection of fonts from the Font Bureau, a type-design boutique run by David Berlow and Roger Black. On the other hand, Adobe has an exclusive license to sell typefaces from Berthold, Europe's leading font foundry, so the version of the Adobe Type Library on the Agfa, Monotype, and NEC discs doesn't contain such well-known Berthold faces as Nofret and Poppl-Pontifex.

Every company except Image Club gives you free access to all bit-mapped (screen) fonts. You can use the unlocked bit-mapped version to sample a font before you buy it. By using the bit-mapped font in a layout or by printing a sample in the available point sizes (generally 10, 12, 14, 18, and 24 points), you can get an

CLASSIFICATIONS

A type classification system can be helpful when selecting various type styles or when building your personal type library.

There are many systems to classify type; historic, design origin, and so forth. The classification system presented here is based on visual design characteristics of type.

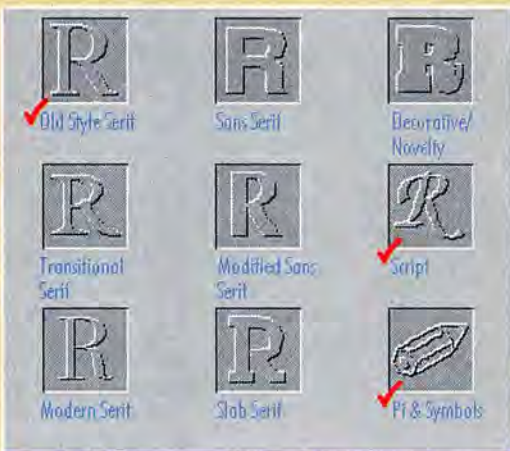


Figure 1: Agfa takes the best advantage of CD-ROM technology, using CD-ROMs as more than just a distribution medium for fonts. The AgfaType disc offers nearly 7 megabytes of shareware; unlockable commercial programs; and an interactive HyperCard tutorial that covers type history, classification, terminology, and design.

CIRCLE 12 ON READER SERVICE CARD.

idea of how the font will look.

What about the frequency of upgrades? NEC has the most ambitious scheme, offering free quarterly updates of Type Gallery PS, so NEC is probably the most up-to-date source for the Adobe Type Library. In general, vendors plan to update their font CD-ROMs only once or twice a year, meaning that the discs won't contain the most recently released typefaces. If you want the latest fonts, you'll still have to buy them on floppies.

Other Goodies

Even a very large font library consumes only 200 or 300 megabytes of disc space. How companies use the rest of the disc varies dramatically, from The Font Company's no-frills approach to Agfa's everything-but-the-kitchen-sink collection of shareware, commercial programs, and multimedia type tutorials.

In the freebies categories, all the discs include utilities such as Font/DA Mover and font-downloading software. Adobe's Type On Call provides Type Reunion, ATM, and the 13 standard fonts (Helvetica, Times, Symbol, Courier, and so on). Bitstream supplies Analogue, a DA that cross-references all known names of a particular font. All this pales in comparison with Agfa's 7 megabytes of up-to-date shareware, which includes such popular utilities as Address Book, Check-List, Compact Pro, FlashWrite, PopChar, and theFONDLer.

The Agfa, Monotype, NEC, and URW discs include commercial software that can be unlocked in the same way as fonts and are available at attractive discounts. Agfa has the most robust selection: LetraStudio, MasterJuggler, Metamorphosis Professional, OnLocation, and TypeStyler. NEC offers ATM, Smart Art, Suitcase II, TypeAlign, and Type Reunion. URW supplies Mac versions of its font-making tools, Ikarus-M and Linus-M.

The AgfaType CD-ROM also has the most impressive on-line presentation, with useful HyperCard tutorials on typography, design, and TrueType (see Figure 1). Agfa and The Font Company each provide an on-screen type directory. Monotype's CD-ROM includes FoneFonts Browser, a utility that lets you view and print bit-mapped type specimens at about 60 points. The other discs' on-line presentations are fairly Spartan.

All the CD-ROMs come with some form of printed instructions and type samples, but they vary tremendously in

Discount Font Sources

Most of the unlockable-font CD-ROMs are available at substantial discounts through mail-order companies such as MacConnection and MacWarehouse. Here are three other sources that also offer attractive prices on font CD-ROMs:

FontHaus
15 Perry Avenue, Suite A7
Norwalk, CT 06850
(800) 942-9110
(203) 846-3087

Phil's Photo
2380 Champlain Street N.W.
Washington, DC 20009
(800) 424-2977
(202) 293-2214

Precision Type
47 Mall Drive
Commack, NY 11725
(800) 248-3668
(516) 864-1024

clarity and usefulness. Adobe's Type On Call comes with one of the sparsest — the only typeface samples are on a poster. (Adobe does, however, sell the *Adobe Type Guide* (\$39), which shows full character sets and sample text in two volumes.) In contrast, NEC's Type Gallery PS offers full-page type specimens of the entire Adobe Type Library.

Agfa provides two type catalogs — a booklet showing one-line specimens of all the text fonts on the CD-ROM (including the Adobe faces) and another showing the full character sets for the 126 Pi and Symbol fonts. Bitstream, The Font Company, Image Club, and Monotype offer catalogs that show the full character sets for all the fonts on the CD-ROM. The introduction to The Font Company's catalog offers a fascinating essay on type selection and usage — a nice bonus. URW's TypeWorks CD-ROM will come with an impressive specimen book that includes full character sets, several sample settings of text, and large point sizes of the five style variations.

Unlocking the Technology

All the discs, except The Font Company's, use a control-panel utility to unlock typefaces (see Figure 2). You install the control panel in the System Folder on your hard disk. When you open the control panel, you see the seed code. You



GREAT DRIVES



- SCSI II
- Ultra high reliability (150,000 hours MTBF)
- Data transfer rate up to 10 MB/second
- As low as 12.6ms avg. random seek time

422MB \$1488

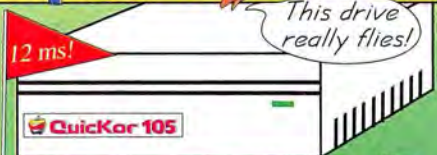
Also available now 234MB, 322MB!
1 Gigabyte available in June!!



- 40 or 80 MB
- Ultra compact and lightweight
- Perfect second drive for Powerbooks
- Great as portable back up unit

40MB \$399 80MB \$699

Birdie Special



- Quality, low power mechanism
- 3rd height • proven reliable

40MB \$248 105MB \$448

800 622-8804

24 hour QUICKFAX (503) 286-8710
Local: (503) 286-9350



Out of Warranty? Need Help? Have Questions?
Call **900-903-0404** \$1.49/min.

CIRCLE 94 ON READER SERVICE CARD.



Peachtree. The First And Best In Mac Accounting.

At Peachtree, we've been making Mac accounting software longer than anyone—since 1984. And our products have won more awards any other accounting software.

If that isn't reason enough to go Peachtree, then ask your accountant. He'll tell you our products are the next best thing to an accounting teacher at your side.

For accounting as easy as it gets, try atOnce! For \$249, it combines all the functions you need—G/L, A/R, A/P, and Payroll—in one package.

For more in-depth analysis, there's the Insight Expert Accounting Series—advanced modules that can crunch numbers, analyze data and forecast trends. All for \$395 per module.

We back our Mac products with 30 days of free support and a money-back guarantee. So see your local dealer or call PeachLine at (800) 428-9976.



Peachtree®

The first name in small business accounting software.™



★★★★½

CIRCLE 73 ON READER SERVICE CARD.

DESKTOP PUBLISHING TYPE

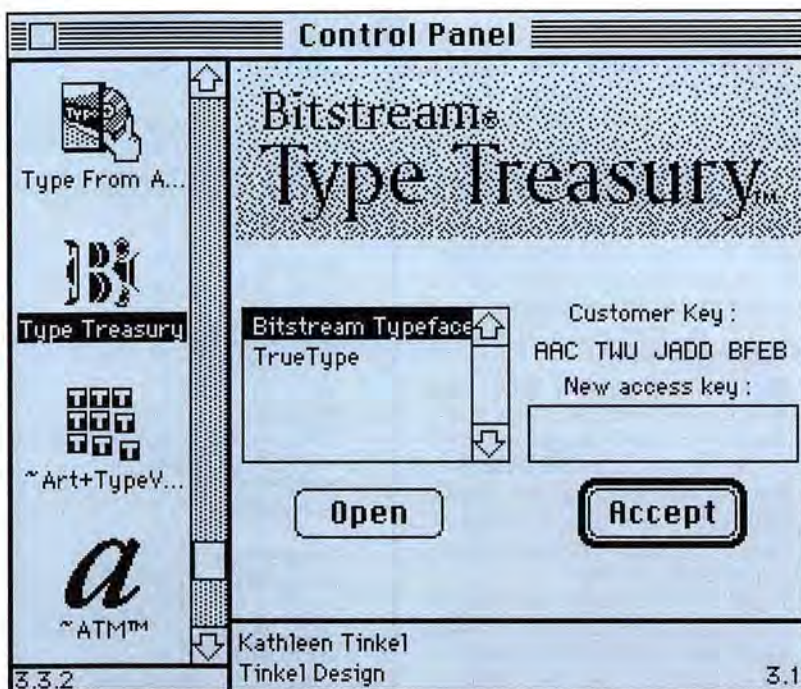


Figure 2: The Bitstream control panel is typical of those on CD-ROMs that use the And Group's unlocking technology. To unlock a font, you call the vendor and provide the Customer Key (seed code), along with your serial number, credit-card information, and the name of the font(s) you want. The vendor then gives you one access code for each font or package you're ordering. After you've typed the codes into the New Access Key box, the desired fonts become visible on the desktop.

provide this code to the vendor, along with the CD-ROM's serial number, your credit-card information, and the font(s) you want. In return, the vendor gives you one access code for each font or package you order. Once you've typed the codes into the control panel, the desired fonts become visible on the desktop.

The Font Company uses a small application called FontBuyer that automatically generates an order form that includes the CD-ROM's serial number and the seed code. You supply your credit-card information, and fax or modem the order form to The Font Company. Usually within an hour, the company sends you the access codes for unlocking the fonts.

Although the fonts should remain accessible on the disc once you've unlocked them—as long as you retain a copy of the control panel, which stores the access codes—it's a good idea to copy newly unlocked fonts onto your hard disk immediately and to make backup copies on floppy disks too.

Four of the CD-ROMs (from Adobe, Agfa, Bitstream, and Image Club) use the

same unlocking technology, from the And Group, a Canadian company that co-developed the technology with Image Club. The NEC disc uses a similar system, from Trantor, and The Font Company uses its own technology, implemented through the FontBuyer utility. At press time, URW hadn't decided which technology to use.

Monotype recently implemented a new unlocking technology, from the Israeli company Galliad, that enables its Fone-Fonts CD-ROM to take a single set of font data and provide typefaces that are compatible with Mac or PC platforms, making it the first cross-platform font CD-ROM.

In general, the still-evolving unlocking technology does have a few annoyances. Once you've given a vendor a seed code, you must leave the control panel open until you've received and entered the access codes. Ordinarily this shouldn't be a problem, because vendors usually provide the codes right away. If you close the control panel or crash after supplying the seed code, however, the unlocking

software will not accept the access codes, because every time you open the control panel, you'll see a new seed code, which requires different access codes to unlock the font(s). The unlocking process should be simplified for the next versions of the

font discs that use the And Group's technology: The software has been upgraded to allow you to close the control panel while you wait for the access code.

With the exception of a few packages, vendors issue a separate access code for

every font you buy — a nuisance when you want to unlock several at one time — and you must type them in, one at a time, without error. It would be preferable if the unlocking technologies could be upgraded to permit bulk entry of the codes or allow a single code to unlock all the fonts purchased at one time.

Cost Considerations

Figuring out the real cost of fonts on a CD-ROM is tricky. You must factor in the cost of the disc, the value of the "free" faces (count only the fonts you would have bought anyway — the others are a bonus but aren't nearly as valuable as the ones you need), the value of any other premiums (Image Club gives you a volume of clip art, for example), and the cost of unlocking each font.

In general, you'll get better prices if you buy CD-ROMs from dealers — not foundries — because dealers are more likely to offer good discounts. Mail-order companies, for example, sell Adobe's Type On Call for about half its list price. For other places to get good deals on unlockable-font CD-ROMs, see the "Discount Font Sources" sidebar.

Because the initial price is only part of the total cost when you buy fonts, you should find out how much it costs to unlock the fonts — it would be a poor deal to save \$10 or \$20 on the disc and then pay relatively high prices for the fonts. One nice feature of font CD-ROMs, however, is that you can buy single typefaces rather than font families, which lets you spend less money to get a face you need for a specific project.

Also consider which fonts are free when you buy the CD-ROM. Some vendors limit your choices, which can reduce the disc's value if you don't need those fonts. The Font Company gives you just a single font — either Torino or Koloss. AgfaType comes with a preselected set of 20 free display faces, although you also get to choose one of Agfa's useful Pi and Symbol fonts. (Agfa also gives you Garth Graphic, but if you like the face, you'll need to buy the other five weights.) Image Club supplies 20 free fonts — 10 preselected faces that are already accessible when you receive the CD-ROM and another 10 that you can choose and unlock after obtaining the access codes.

NEC's Type Gallery PS is the least restricted — you can choose any three Adobe packages, with a limit of 15 fonts, when you buy the disc. Adobe supplies

Serious Tools for Serious Work

HAMMER

At FWB, we're serious about hard drive performance. That's why Hammer drives consistently come out on top in reviews in MacWorld and MacUser. We're also serious about delivering superior service, support, and software. Our new 2 year warranty and Hammer PremiumService™ guarantee you'll never have more than 48 hours of downtime with a Hammer drive. And our Hard Disk ToolKit software gives you the power to configure your Hammer drive for unequalled functionality and control. That's why Hammer has become the first choice among serious Macintosh professionals.

For more information and the name of your local Hammer dealer, call FWB at 415/474-8055 or fax us at 415/775-2125.



FWB
incorporated

Hammer, and HDTToolkit are trademarks of FVB, Inc. Other trademarks are properties of their respective owners.

Featured:
hammer600FMF
11.9 ms seek time
3.0 MB per second transfer rate
2 year warranty

NEW - Prices Reduced!
Call for details.

CIRCLE 84 ON READER SERVICE CARD.

26 fonts — 13 are unlocked when you purchase the disc, and you can choose which two packages (13 fonts) to unlock from a list of eight packages. NEC's disc, at \$399, is substantially more expensive than the other CD-ROMs; it becomes a bargain, though, when you buy it with a NEC CD-ROM drive, which costs only another \$100. If you need a CD-ROM drive, this is clearly the best value.

Aside from cost, you should also consider convenience. Some vendors let you unlock fonts during local working hours only, and others are open 12 hours a day to accommodate users nationwide. The Font Company recently instituted the first round-the-clock service, but it's available only by modem.

The Bottom Line

If you own a CD-ROM drive and have a fairly consistent need for new typefaces, unlockable-font CD-ROMs are an unbeatable deal. Unlocking fonts as needed is a flexible way of acquiring faces — even if single weights are all you want — without having to plan ahead or invest in extended families (unless you want to).

The CD-ROMs may seem similar, but there are distinct differences in available fonts and software, pricing structure, hours of operation (for unlocking), and frequency of upgrades. You could buy one CD-ROM from each of the four general collections — Bitstream, Image Club, URW (from either URW or The Font Company), and the type consortium. Or you could buy all eight CD-ROMs for less than \$900 at street prices and get 99 fonts at an average of less than \$9 each. But be forewarned: The instant gratification that unlockable-font CD-ROMs provide can change your type-buying habits from deliberate purchases to impulse buys.

If you don't have a CD-ROM drive, should you make the investment? That depends on your needs. If you will need to buy several typefaces in the next year or want the convenience of immediate access to fonts, then the answer is probably yes. Some type vendors even offer special bundling deals with popular CD-ROM drives (see Table 1). A CD-ROM drive will probably prove to be a valuable investment, as more collections of photography, clip art, games, and commercial software become available for this roomy storage medium (for more on CD-ROM drives, see "Is It Time for CD-ROM?", June '91, page 150).

Finally, if you operate a publishing

empire or an output service, you might want to consider getting an already unlocked CD-ROM or a hard drive instead. Most type vendors sell their entire library, unlocked, at prices that are bargains on a per-font basis. A 1,000-font library may

work out to less than \$12 or \$15 per font, but that's still \$12,000 to \$15,000.

Contributing editor Kathleen Tinkel is a type-loving graphic designer and copublisher of *MacPrePress*, a weekly faxed newsletter.

Sell the Idea with Infini-D.™



You have great ideas. You need a tool to put your ideas to work.

Introducing Infini-D, a breakthrough 3D visualization package from Specular International.

Create stunning images for your proposals, prints and slides. Produce dynamic animations that breathe life into your video and multimedia presentations. All at a cost that will keep you ahead of the competition.

Find out why MacUser calls Infini-D "a quantum leap for 3D design packages priced at less than \$1,000."

Call (413) 549-7600, and we'll send you a free interactive tour showing how Infini-D can transform your ideas into reality.

Sell the Idea. With Infini-D.

SPECULAR
international™

233 North Pleasant Street • P.O. Box 888
Amherst, MA 01004-0888 • 413-549-7600
the imagination specialists

©1991 Specular International. All rights reserved. MacUser quote from October 1991 issue.

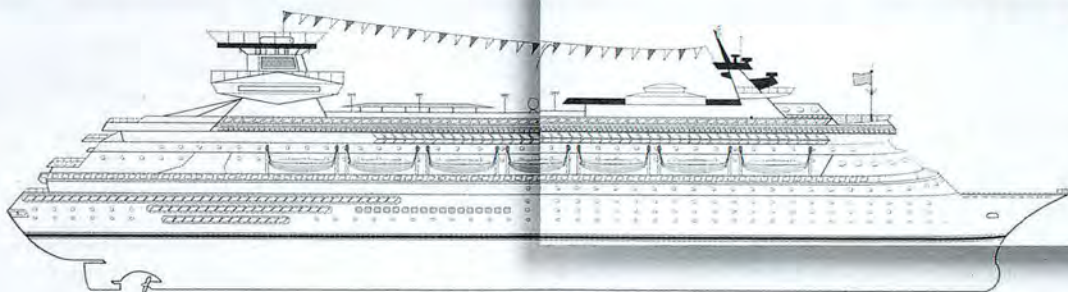
CIRCLE 85 ON READER SERVICE CARD.

1. See 7. ©1991 Steve McGinnis, Anbyes.
"Landscape Shootout." ©1991 Peter Allen.
"3D Box." ©1991 Robert Drummond, Morris White.
Drummond Lonsbait & Associates.
Infini-D™ and Specular International™ are trademarks of
Specular International, Ltd. All other trademarks are
property of their respective owners.

Table 1: Features of Unlockable-Font CD-ROMs

	Adobe Systems Type On Call	Agfa Compugraphic AgfaType 3.0	Bitstream Type Treasury	The Font Company Font Company Library CD
List price				
Disc only	\$99	\$99	\$69	\$29.95
Disc/drive bundle (model)	NA	\$695 (Toshiba TXM3301)	NA	NA
Per font style/weight	\$50	\$50 (4 fonts minimum order)	\$25 to \$39	\$24.95 to \$39.95
Comments	No frills. Skimpy type-sample poster. Exclusive supplier of Berthold library.	Great value. Many free faces. Tons of shareware. Interactive type tutorial in 7 languages.	No frills. Useful Analogue DA.	No frills. Only 1 free font, no choices. No toll-free voice/fax number. Access by modem is always available.
Disc contents				
Total number of fonts	1,350	1,900	1,030	1,643
Foundries represented	Adobe, Berthold	Agfa, Adobe	Bitstream	The Font Company (URW)
TrueType fonts	no	yes (20)	yes (40)	no
Unlocked screen fonts	yes	yes	yes	yes
Free software	ATM, Type Reunion	7 megabytes of shareware	Analogue DA	none
Unlockable software	none	LetraStudio, MasterJuggler, Metamorphosis Professional, OnLocation, TypeStyler	none	none
Upgrade frequency	6 months	4 months	to be determined	6 months
Upgrade cost	free to registered users	free to registered users	to be determined	\$19.95
Free fonts				
Unlocked on disc at purchase	13 ATM fonts	Garth Graphic	none	none
Call to unlock	13 fonts from 2 packages	20 display faces, 1 PI and Symbol font	6 fonts	1 font
Restrictions	choose 2 of 8 packages	no choice on display faces; choose from 126 PI and Symbol fonts	choose from 20 fonts	Torino or Koloss
Font availability				
Who sells the disc?	direct, dealers	direct, dealers	direct, selected dealers	direct, selected dealers, art-supply stores (no mail order)
Who unlocks fonts?	Adobe	Agfa	Bitstream and 2 dealers	The Font Company
Toll-free number for unlocking	yes	yes	yes	modem, yes; fax, no
Hours of access for unlocking	5 A.M. to 9 P.M. PST, weekdays; 8 A.M. to 4 P.M., Saturday	8 A.M. to 8 P.M. EST, weekdays	8 A.M. to 6 P.M. EST, weekdays	9 A.M. to 5 P.M. MST, weekdays(fax); 24 hours, 7 days (modem)
Unlocking technology	And Group	And Group	And Group	The Font Company
Company	Adobe Systems 1585 Charleston Rd. P.O. Box 7900 Mountain View, CA 94039 (800) 833-6687 (415) 961-4400	Agfa Compugraphic 90 Industrial Way Wilmington, MA 01887 (800) 424-8973 (800) 387-9533 (Canada) (508) 658-5600	Bitstream 215 First St. Cambridge, MA 02142 (800) 237-3335 (617) 497-6222	The Font Company 7850 E. Evans Rd. Scottsdale, AZ 85260 (800) 442-3668 (602) 998-9711

DON'T MISS THE BOAT.



S.S. OCEAN DUCHESS

1590 passengers. 70,000 gross tons. 811 feet in length. 14 Decks. Pizzeria. Health and beauty center. Two pools, one with in-pool bar. Four whirlpool spas. Ultra-spacious staterooms, many with verandas and balconies. Observation lounge with entertainment complex and casino. Italian registry.



PROMENADE DECK

GET THE NEW WIDEWRITER 360.



If you've been waiting for an affordable desktop printer that can handle the really big jobs, your ship has finally come in. Introducing the new WideWriter 360™ from GCC Technologies® — the wide-carriage inkjet printer capable of printing on 17" x 22" (C-size) paper. With the WideWriter 360, printing large CAD

drawings, super spreadsheets and gigantic graphics is no big deal. And because it can also print on a variety of paper sizes including letter, ledger and fanfold, there's little the WideWriter 360 can't handle.

The WideWriter 360 is fast and quiet. Plus its 360 x 360 dpi resolution produces crisp, laser-quality lines, text and graphics. Of course, this large format printer is also big on features, including:

- **AppleTalk networking or serial.** Automatically configures for shared or personal use.
- **Background printing.** Returns control of your Macintosh to you faster.

- **ATM and Adobe Type 1 fonts are included, with support for TrueType.** Gives you unlimited font access in any size.

- **Flexible paper handling with our multiple sheet feeders.** Lets you take letterhead from one feeder and subsequent pages from the optional second feeder.

The WideWriter 360 also features the unmatched reliability and innovation that are standard in every GCC Technologies product. It's the only name to count on when you want a high quality, large format printer that fits even the smallest budget.

Easy Ordering. 800-422-7777, extension 546.

The WideWriter 360 is available for the amazing price of just \$1699! To order your WideWriter 360 or for the name of the dealer nearest you, simply call us toll-free. When you order direct from us, you get a 30-day money-back guarantee and \$9 Federal Express overnight delivery.




**GCC
TECHNOLOGIES**
Peripherals With Vision™

TYPE

Table 1: Features of Unlockable-Font CD-ROMs, continued

	Image Club Graphics Art + Type Vendor	Monotype Typography FontFonts	NEC Technologies Type Gallery PS	URW TypeWorks*
List price				
Disc only	\$99	\$49.99	\$399	\$95
Disc/drive bundle (model)	NA	\$650 (NEC CDR-73 or PLI)	\$499 (NEC CDR-36)	NA
Per font style/weight	\$25	\$29 to \$45	\$49	\$40 to \$50
Comments	Small number of fonts. No unlocked screen fonts. 20 volumes of unlockable clip art. Only annual upgrades.	Handy browser utility. Font Bureau library. Unlocks fonts for Mac or PC platforms.	Expensive disc. Best drive bundle. Unrestricted choice of free Adobe fonts. Frequent upgrades. Full-page samples.	Small number of base fonts (500). Only one free font. Handsome type-specimen book. Long ordering hours.
Disc contents				
Total number of fonts	620	1,560	1,000	3,000
Foundries represented	Image Club	Monotype, Adobe, Font Bureau	Adobe	URW
TrueType fonts	no	no	no	no
Unlocked screen fonts	no	yes	yes	yes
Free software	none	none	none	none
Unlockable software	Digit-Art (20 volumes)	ATM, Agency Fit XTension, Type Reunion	ATM, Adobe Plus Pack, Smart Art, Suitcase II, TypeAlign, Type Reunion	Ikarus-M, Linus-M
Upgrade frequency	1 year	4 to 6 months	3 months	1 year
Upgrade cost	\$25	free to registered users	free to registered users	nominal
Free fonts				
Unlocked on disc at purchase	10 fonts	none	none	none
Call to unlock	10 fonts, 1 volume of clip art	8 fonts	3 packages, limit of 15 fonts	6 fonts (1 font, 5 variations)
Restrictions	none	choose from 38 fonts	none	none
Font availability				
Who sells the disc?	direct, selected dealers	direct, selected dealers	dealers	direct, selected dealers (no mail order)
Who unlocks fonts?	Image Club	Monotype or dealers	NEC	URW
Toll-free number for unlocking	yes	yes	yes	yes
Hours of access for unlocking	8 A.M. to 5:30 P.M. MST, weekdays	8 A.M. to 5:30 P.M. CST, weekdays	7 A.M. to 9 P.M. CST, weekdays	8 A.M. to midnight EST, weekdays
Unlocking technology	And Group	Galliad	Trantor	to be determined
Company	Image Club Graphics 1902 11th St., S.E. Suite 5 Calgary, Alberta T2G 3G2 Canada (800) 661-9410 (403) 262-8008	Monotype Typography 53 W. Jackson Blvd. Suite 504 Chicago, IL 60604 (800) 666-6897 (312) 855-1440	NEC Technologies 1255 Michael Dr. Wood Dale, IL 60191 (800) 826-2255 (708) 860-9500	URW 4 Manchester St. Nashua, NH 03060 (603) 882-7445

* Not shipping at press time.



IF YOU DON'T HAVE THE PLP II, YOU'LL NEED SPECIAL EQUIPMENT TO GET EDGE-TO-EDGE PRINTING.



If you want a printer that's a cut above the competition, look no further than the \$999 Personal LaserWriter™ II (PLP™ II) from GCC Technologies®. GCC's exclusive edge-to-edge printing

gives you the power to produce larger graphics, flow charts, and much more. With other printers, like the Apple® Personal LaserWriter® LS, you're forced to cope with margins that confine your graphics and narrow your options.

Edge-to-edge printing is just one of the features that set the PLP II apart from the pack. Other features include:

- **PostScript upgrade.** Provides an upgrade path to PostScript® and AppleTalk® networking.
- **Greater scaling capabilities.** Scales from 25% to 400% in 1% increments, compared with the Personal LaserWriter LS, which is limited to 50% and 75%.
- **Straight-through paper path.** Ensures wrinkle-free printing of heavy stocks, envelopes, labels, etc.
- **New! Background printing.** Lets you get back to work on your computer faster, and allows sharing using AppleShare® with System 7.0.

- **Faster print time.** Prints faster than the Personal LaserWriter LS. In fact, *MacUser* (May 1991) found the PLP II to be 20% faster than the Apple Personal LaserWriter LS on their Microsoft® Word test document, 40% faster on their MacDraw® II test, and twice as fast on their Excel test.

- **On-screen page preview.** Saves time, toner and paper.

Of course, the PLP II also features the unmatched reliability and innovation that go hand-in-hand with the GCC Technologies name. It's the name to count on when you're looking for a high-quality, affordable laser printer. And there's no margin for error.

Easy Ordering. 800-422-7777, extension 295.

To acquire your new PLP II, simply call us toll-free, and we'll give you the name of the GCC Technologies dealer nearest you. Or order direct from us, with a 30-day money-back guarantee and \$9 overnight delivery.



**GCC
TECHNOLOGIES**

Peripherals With Vision™

Creating a Woodcut Look

You can imitate the look of a traditional woodcut by layering simple black and white shapes.

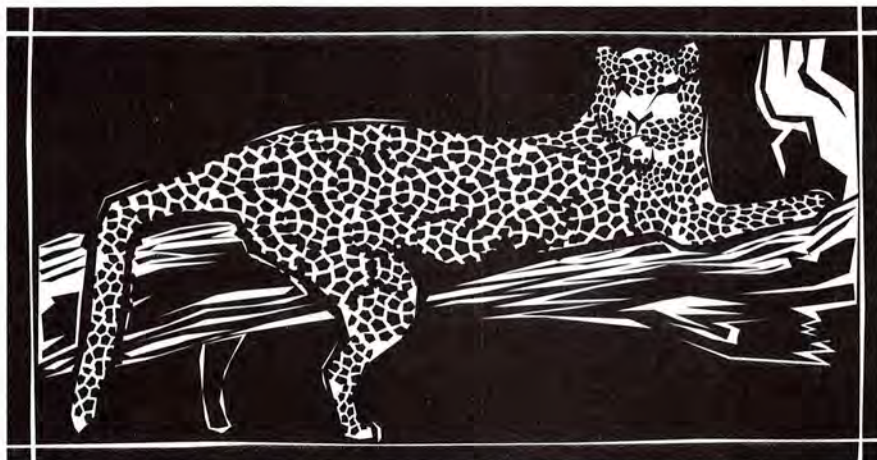
By Janet Ashford

One virtue of a drawing program is that its tools produce a uniform line, in whatever weight you specify. Sometimes, however, an illustration calls for an irregular thick-and-thin line. You could use a painting program to create such lines, but you would lose the advantages of a drawing program's object-oriented, resolution-independent image. You can, however, create a line of varying thickness in drawing programs by using overlapping polygonal shapes.

Designer John Odam created the illustrations on this page as chapter-opening art for *Reading for Understanding*, a college textbook published by Wadsworth Publishing Co. All the shapes were drawn with a straight-line tool to imitate the way a knife cuts lines into a block of wood.

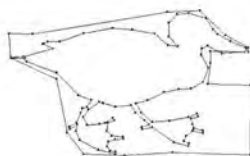
Odam used FreeHand 3.0, but the same technique could be used in Canvas, MacDraw, SuperPaint, or Illustrator. Every drawing program has a pen or polygon tool, and each can layer a series of opaque objects. In addition, FreeHand 3.1 has a pressure-sensitive freehand tool that lets you draw a line (actually an object) of varying thickness.

Graphic designer Janet Ashford is a contributing editor to *Step-by-Step Electronic Design*.



Illustrations that resemble traditional woodcuts are easy to create in any drawing program, look good in black-and-white and in color, and stand up well to resizing and less-than-perfect paper and printing conditions.

1 Creating a Negative Space



Each illustration begins with a black rectangle that has overlapping white border lines. The lines are actually long thin polygons drawn with a pen or polygon tool. To create a duck-shaped hole inside a white shape, Odam begins by drawing a duck shape, starting at the tail. Rather than closing the path at the tail, however, he doubles back and traces around the outside of the duck (left). When the shape is filled with white and placed on top of the rectangle, the black background shows through the hole, creating a duck (right).

2 Drawing Black Shapes



An additional white area is drawn to the left of the duck shape. Odam next draws a black shape that trims back the white edges around the top half of the duck and blends in with the black background. The shapes of the baby ducks are drawn over the white background and filled with black. Additional white and black marks (thin polygons) are added to imitate the look of knife gouges.

3 Adding Final Details



White shapes that represent eyes and feather details are added to the ducks' bodies. Two long white zigzag shapes are placed along the ground to complete the image.

4 Using Color



These illustrations are designed to be printed in black-and-white, but it's easy to add color. Simply change the white shapes to a light color and the black ones to a dark color. Woodcut illustrations can be rendered in one color plus black (top) or in two colors (bottom).

5 Auto-Tracing a Real Woodcut



Another way to bring the quaint, rough look of a woodcut into the PostScript or QuickDraw environment is by auto-tracing a genuine woodcut such as this one from a mid-19th-century artist. The sequence above shows how the auto-tracing program — in this case, Streamline 2.0 — builds up the illustration layer by layer, moving from the largest shape to the smallest. Auto-tracing tools can also be found in Canvas, FreeHand, Illustrator, SuperPaint, and UltraPaint.

Many of our products come with a thirty day money back guarantee, if you are not completely satisfied. Ask for details when you place your order.



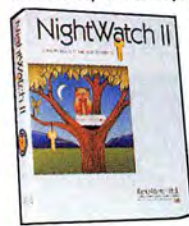
Smartcom II Mac 3.3

Smartcom II for the Macintosh is praised by software reviewers and users as the most reliable, easiest to use Mac communications software available. Smartcom II takes full advantage of the power and unique graphics capabilities of all Macintosh computers including special support for System 7, provides support for all popular modems, and offers a simple, but powerful interface to the advanced features of Hayes Smartmodem™ and V-series® products, including ULTRA™ 96 and ULTRA™ 144. It supports TTY, VT™ 52/100/102, ANSI, Prestel™, and Show Controls terminal emulations and Autotype Protocol, XModem (XModem Standard, XModem CRC, XModem 1K), YModem, YModem-G, ZModem, Kermit™, CompuServe™ B Plus file transfer protocols. **Publisher: Hayes COM0015**

\$84

NightWatch II

NightWatch II assures you of the most rigorous, yet friendly hard disk protection in the industry. When it's locked, it's locked! No disk recovery tool or SCSI probe may access your data unless you allow it to do so. With three different hard disk protection options: Diskless, Key Disk and Classic Token Disk. The choice is yours! Share your computer with only those users you desire. Assign them a myriad of hard disk access privileges or restrictions. It's simple to set up, and just as easy to change. **Publisher: Kent Marsh Ltd. UTI0262**



\$95



Lotus 1-2-3 For Macintosh

At last, a 1-2-3 spreadsheet that is designed exclusively for the Macintosh computer. 1-2-3 for Macintosh takes full advantage of the rich graphical environment of Macintosh while delivering significant new spreadsheet features. And of course it's compatible with other new versions of 1-2-3 and Excel. A whole new kind of 1-2-3 created expressly for Macintosh. The result is a rich design that makes even the most complex spreadsheet tasks easy. 1-2-3 for Macintosh sets a new standard for what a Macintosh spreadsheet should be. System requirements, any Macintosh with a hard disk. 2MB RAM under System 6 or later. 3 MB RAM under 7. **Publisher: Lotus Development BUS0188**

\$349

TAL or Timeslips III 2.1

TAL-Timeslips Accounting Link extends Timeslips III with or without general ledger accounting software. Generates customized income reports; links the billing and payment data from Timeslips III to accounting programs. **FIN0129 \$55.**

Timeslips III 2.1 is complete time keeping and billing package for people whose stock in trade is their time. You gather time data with TS timer DA. When the time comes to send the bill, TS Report will extract the data and generate invoices and reports in a wide variety of formats. Handles the big jobs: 250 users, 250 different activities, and over 3,000 clients, with up to 128 projects per client. **Publisher: Timeslips Corporation BUS0043**



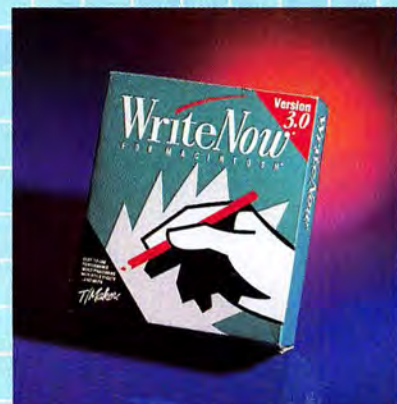
\$195



WristSaver/ WristSaver MousePad

The WristSaver cradles your wrist with a contoured neoprene rubber pad and a nylon covering. It's ergonomically designed to support your wrist at the proper angle to help avoid the pain associated with Carpal Tunnel Syndrome. The WristSaver MousePad provides a comfortable rest for your wrist, plus a conventional mouse pad. Simple finger movements replace sliding the entire arm or hand. **Manufacturer: LB Innovators WristSaver MousePad ACC0635 \$15. WristSaver ACC0560 \$15. Bundle BND0033 (Available in Gray, Black, Red or Navy)**

\$25



WriteNow 3.0 with FREE Grammatik Mac 2.0

NEW VERSION! WriteNow 3.0 is one of the *fastest* Macintosh word processor and has long been considered by the industry experts to be one of the *easiest* to use. A two-time winner of MacUser's Best New Word Processor Award, WriteNow, includes a lightning-fast 135,000-word spelling checker, a 1.4 million-word thesaurus DA, one of the most powerful paragraph and character style sheets of any Mac word processor, a robust print preview, System 7 compatibility, a FREE full version of Grammatik™ Mac 2.0, one of the best selling grammar/style checkers (a \$99 value). Completely compatible with, Microsoft Word, Works, MacWrite II, PC WordPerfect and other popular formats. **Publisher: T/Maker WRD0051**

\$159

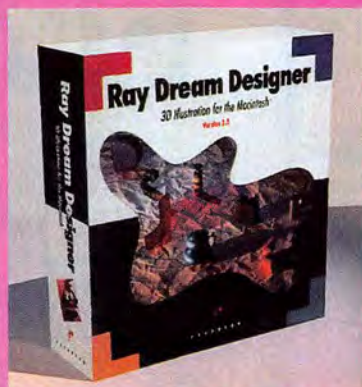
NEW WindoWatch

Track the hours you spend on a project with WindoWatch. It's a must for professionals who bill their services by the hour (or minute). WindoWatch operates in the background, automatically generating a timesheet as you work. Use WindoWatch to collect and merge timesheets from team members over the network or export timesheet information to a spreadsheet. Don't miss any opportunity to accurately bill your clients. After all, time is money. **Publisher: ASD Software UTI0264**



Single User

\$89



Ray Dream Designer 2.0

You don't have to settle for flat illustrations and designs any longer. Ray Dream Designer's drawing and text tools, for creating lines, circles, ellipses, polygons, Beziars, colors and shadings, are virtually the same as those in most 2D illustration programs. The only difference is, now your objects have the realistic look of three dimensions. Wrap them around an object or text for instant dimension. Comes with a library of 3D solid textures you can use as-is or customize. Lightning, shadows, transparency, reflections and, best of all, perspective are all handled automatically. Requires: Mac II family with coprocessor, 32-bit QuickDraw; 4MB RAM and hard drive. **Publisher: Ray Dream GRA0292**

\$589

FREE

POWER USERS TOOL KIT 7.0

If you're not already a collector of Steven Bobker's highly successful Power User's Tool Kit - compiled exclusively for MacWAREHOUSE - you'll want to start with version 7.0. It's stuffed with ten useful applications, utilities, desk accessories, INITs and System 7.0 extensions for your Macintosh. They're great productivity enhancers and you'll be surprised how easy they are to use.

Steven Bobker Presents

THE POWER USERS TOOL KIT 7.0

ALL NEW!

Includes:

- Save-a-Tree so you can print out text-only files with four reduced pages on the front side of one!
- LaunchINIT 2.0 - logs the activity of your Mac vital if you take a computer tax deduction.
- Applicon - System 7.0 users can switch among open applications by clicking on icons on your desktop. Plus much, much more.

And For System 7.0 Users:

- Regional Touch - making menu applications by clicking on the Globe.
- The Thin Drop - an icon on your desktop that for it in your Apple Menu.
- Window-Tidy - Buttons help on and off from your keyboard.
- And much, much more!

MacWAREHOUSE
1-800-255-6227

All New!

Includes:

- Save-a-Tree - so you can print out text-only files with four reduced pages on the front side of one!
- LaunchINIT 2.0s - logs the activity of your Mac - vital if you take a computer tax deduction.
- Applicon - System 7.0 users can switch among open applications by clicking on icons on your desktop.

Plus much, much more.

And the best thing is, the programs are shareware so you can try them FREE when you order from MacWAREHOUSE. You pay only \$1.50 shipping and handling if you want the disk. If you wish to continue using the software, some authors ask that you pay a small fee (\$5-\$25). All the details are explained on the disk, which is yours to keep. Please remember to ask for item # AAA 0013 when you order.

White Knight V.11

⑦ The perfect low-cost solution to almost any Mac telecommunicator's needs. Offers the kind of power associated with products costing hundreds of dollars more, but is easier to learn and more flexible. 270+ page user manual is geared to all levels of experience. Winner of 11 awards including MacWorld's World Class Software Award 1987-1991. Publisher: FreeSoft COM0060



\$85

WordScan or WordScan Plus*

⑦ WordScan offers the most accurate OCR with a wealth of conveniences. WordScan reads all documents-even dot matrix and fax files. Standard features include preview scan, Deferred Processing and the Verifier-features you can't find on OCR costing hundreds of dollars more. UT10215 \$249. WordScan Plus is the new #1 Macintosh OCR and winner of the 1991 Mac User Eddy Award for Best New Word-Processing Tool. WordScan Plus includes multi-zone templates, the Pop-Up Verifier, AutoClipping and style sheets. Publisher: Calera Recognition Systems UT10216



\$699*

Aldus SuperPaint or Aldus Gallery Effects*

Aldus SuperPaint 3.0

⑦ Five time winner of MacWorld magazine's World Class Award, new Aldus SuperPaint combines painting, drawing, and image enhancement, and includes 1 thru 24 bit color, textures, gradients, and EPS graphics. GRA0112 \$133. Aldus Gallery Effects ⑦ 1991 MacUser's Editors' Choice Award for Best Visual Resource. Aldus Gallery Effects automatically transforms greyscale and color bitmap images into stunning, sophisticated art, with 16 master effects including Graphic Pen, Watercolor, and Charcoal. Works directly within programs like SuperPaint and PhotoShop, or as an application or DA. Publisher: Aldus GRA0279



\$129*

MacKids Preschool Pack

⑦ The MacKids Preschool Pack consists of six color programs that are entertaining, simple to use and easy to understand. AlphaWorks teaches letter recognition and keyboard layout. Bar Math teaches the basic concepts of numbers using blocks. Concentration develops short term memory skills as players try to match picture cards. Connect the Dots teaches number and letter sequence. Counting 1,2,3 develops counting skills, and ShapeWorks teaches shape, color and size recognition. Publisher: Nordic Software EDU0142



\$35

I'm Kerry, call me at:

MacWAREHOUSE
1-800-255-6227

(1-800-ALL-MACS)
Inquiries: 908-367-0440
FAX: 908-905-9279
Call 24 hours a day, seven days a week.
NEW! Express Customer Service Number:
1-800-445-9677

*Midnight Express service available weekdays.



We carry more than 2000 Macintosh products, including all the latest releases and new versions. We pride ourselves on getting new products first. Just fill in the information requested below and mail the coupon. We'll start your free, one-year subscription to the MacWAREHOUSE catalog with the next issue.



FREE CATALOG SUBSCRIPTION MUE2
Free MacWAREHOUSE Catalog Subscription
1690 Oak Street, P.O. Box 3031, Lakewood, NJ 08701

Please enter my free, one-year subscription to the MacWAREHOUSE catalog

Name _____
Address _____ Apt. _____
City _____ State _____ Zip _____

(Expect to receive your first issue within 4-6 weeks.)

OVERNIGHT DELIVERY
ONLY \$3.00
1-800-255-6227

Mac
WAREHOUSE

GUARANTEE

Many of our products come with a thirty day money back guarantee, if you are not completely satisfied. Ask for details when you place your order.



The UnMouse

⑦ The UnMouse does everything a mouse can—only faster, easier, and in less space. To move the cursor, simply slide your finger over the glass surface. To make a selection merely press down. The UnMouse also serves as an extended keyboard. Tap the large red button and you have a Power Keypad with 16 keys instantly available to execute macros (60 in advanced mode). With its one million touch points the UnMouse also performs as a small graphics tablet. **Manufacturer: Microtouch INP0084**

\$159

Vocabulearn/ce

⑦ Vocabulearn is now available in Level III and Compact Disc. Expand your vocabulary base with thousands of new words and phrases! **Vocabulearn/ce \$35 ea.** **Compact Disc \$69 ea.** Full line available.

PICTURE IT!

⑦ Penton Overseas has developed a stimulating way to break the global language barrier... **PICTURE IT!** offers a highly interactive "bilingual" approach to a foreign language dictionary...complete with more than 500 high resolution graphics, native pronunciation, and expandable resource file. **Publisher: Penton Overseas** Full line available.



\$42 ea.



IN CONTROL

⑦ Get organized instantly with IN CONTROL, the To-Do List Manager that combines outlining and easy-to-use database features. Create an outline of your activities, then create new columns to track priorities, deadlines, people responsible, or anything else. Quickly select activities you want, in any order. Collapse or expand the outline to see any level of detail. From the creators of FileMaker. **Publisher: Attain BUS0211**

\$95



DayStar FastCache™

⑦ Give a boost to everything you do. DayStar's family of highly rated Cache cards are available for the Macintosh IIfx, IISI, and the Quadras 700 or 900. You'll see performance gains up to 45%. Quadra gains of 4-39%, depending on the application. Includes PowerMath software. The FastCache IISI includes the DualPort IISI adapter which doubles the expansion capability of the PDS slot...the optional 20 MHz math chip really accelerates recalc and scientific tasks. All FastCache products are upgradable to DayStar's PowerCache. 100% compatible. 3-year warranty. See listings for pricing. **Manufacturer: DayStar Digital DRI0224 FastCache IIfx**



\$269



More After Dark

⑦ It's M.A.D.! It's More After Dark—Over 25 incredible new displays for After Dark, the Ultimate Screen Saver. Features contest winners Mowin' Man, Tunnel, GraphStat, and many beautiful new fish! Kittens, Art Museum, and Lunatic Fringe game module help save your screen from phosphor burn-in. (Requires After Dark software.) **UTI0230 \$25.**

After Dark 2.0

⑦ After Dark 2.0 displays over 35 screen savers including classics Flying Toasters and Fish! Includes sound, password protection, logo and message display. **Publisher: Berkeley Systems UTI0119 \$29.**

More After Dark Bundle

Buy both and save. **UTI0231**

\$45

Notify! 1.1

⑦ Receive messages in your pocket while away from your desk, with Notify!, the revolutionary software extension for System 7. Notify! adds the power of remote wireless messaging to dozens of existing applications. Working in the background, it dials into any paging system to deliver full text messages to any pocket pager. Supports unlimited pagers, groups and services. Network version enables wireless messaging on all machines from a single server. Requires modem, pager and service. **Manufacturer: Ex Machina, Inc. Network Version COM0112 \$279. Personal Edition COM0111**



\$109



MacGlobe

⑦ MacGlobe, the extraordinary geography tool for the Macintosh, provides vibrant maps, extensive graphs and an annually updated database for 190 countries and dependencies all at your fingertips. It delivers a variety of maps, including each country's major cities, topography and major geographical features as well as regional maps. MacGlobe's maps and graphics can be exported as PICT files to other popular programs, making it the perfect tool for preparing reports, overheads and presentations. The database provides details about demographics, health statistics, major cities, and economics. Learn about populations, ethnic groups, birth and death rates, literacy rates, schools, medical facilities, and more. **Publisher: PC Globe GRA0245**

\$45

ExpertColor Paint™

⑦ ExpertColor Paint is a simple to use yet powerful color paint program with many extras including 32-bit color, image editing and multiple undo's. By using a vast array of painting tools, you can create great looking art. You won't believe how easy the customizable tools make painting. There are multiple adjustable paint brushes, spray paint, paint cans and more to help create sophisticated art or touch up existing pictures. It's like having a fully equipped art studio at your disposal. Offers advanced image editing features like blur and sharpening filters and includes a free bonus clip art disk (\$24.95 value). **Publisher: Softsync, Inc. GRA0318**



\$29

COMPUERVE

You can now contact MacWAREHOUSE or place orders with us in the **Electronic Mall** on CompuServe. The MacWAREHOUSE GO code is **GO MW**.

As always, you'll get fast, dependable overnight service and you can leave messages for Kerry or any of our support staff.

**OVERNIGHT
DELIVERY**
ONLY \$3.00

**ORDER
UNTIL
MIDNIGHT(EST)
FOR
OVERNIGHT
DELIVERY**

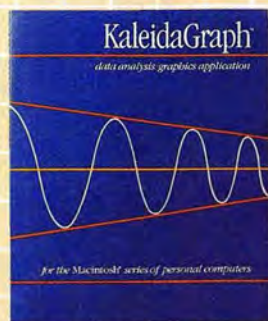


MacPrint 1.3

Use a Macintosh with non-Apple printers. Print Mac applications on HP Laserjet, Deskjet or compatible printers including all Series IIs, IIsx and the Deskjet 500. Prints text and graphics at the printer's maximum resolution.

Does not require PostScript. Cable is included. **Publisher: Insight Development UT10098**

\$95



KaleidaGraph 2.1

KaleidaGraph is the easy way to analyze and present complex data. It simplifies the process of analyzing and presenting statistical information. Provides 16 different graph structures, including scatter, histogram, probability plot, polar, as well as more common types, such as line, bar, pie. You can crunch large amounts of data (up to 32,000 points per column), and plot up to 20 variables at once. Supports both the LaserWriter and the ImageWriter (and color on the ImageWriter II). Requires: Mac Plus or higher. **Publisher: Synergy Software STA0018**

\$149

Active Memory 2.0



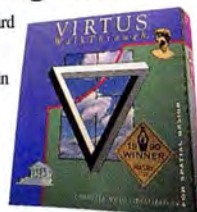
Turn your PowerBook into a power organizer with Active Memory! When traveling, manage info like sales leads, field results or travel expenses. Enter data your way in a free-form Info field. Once back at headquarters, remind networked co-workers about upcoming deadlines. Import contact lists and setup reminders to call them. For daytimers, use Active

Memory to print your things-to-do list or travel itinerary. Make it easier to manage your data in the office or on the road. **Publisher: ASD Software BUS0207**

\$125

Virtus WalkThrough 1.1

The latest version of this award winning program provides everything you need to quickly capture and explore your ideas in 3-D. Virtus WalkThrough's intuitive interface and complete set of drawing and presentation tools make it ideally suited for designers of all types. Version 1.1 includes: real-time 3-D presentations, QuickTime® and PICS animated movies, perspective pictures, enhanced data exchange capabilities for 2D DXF, 3D DXF, PICT, EPS, Claris®CAD and MacDraw. Winner of MacUser's Breakthrough Product of the Year Award 1990. **Publisher: Virtus Corporation GRA0278**



\$249



AutoDoubler

AutoDoubler is the easiest way to increase your hard disk capacity. It works in the background to automatically keep your hard disk compressed. It's lightning quick and completely transparent, so it won't interrupt your work. In fact, AutoDoubler's new patent-pending technique lets your Macintosh use files and applications while they are still compressed! It's 100% compatible with all applications, desk accessories, and system extensions. **UT10254 \$49.**

DiskDoubler 3.7

DiskDoubler gives you total control of file compression-archiving for modem transfer, compressed backups, self-expanding files, and fast copying of files. AutoDoubler and DiskDoubler combined give you the ultimate in speed, convenience, and control. System 7 Savvy! **Publisher: Salient UT10179**

\$49

Design Your Own Home:



Design Your Own Home: Architecture, Interiors, or Landscape. Create floor plans and building plans with structural details. Do individual room plans and kitchen/bath design. Then complete your dream house with graphic landscape plans. Interiors and Landscape programs generate 4 side views

from top-view perspective. Sample plans included.

Publisher: Abacadata

\$65ea.



Fair Witness

1991 MacUser Editors' Choice Award for Best Organizational Tool! This information spreadsheet is a powerful new way to organize your work. Fair Witness lets you to create an outline, add columns for text, numbers, dates, pictures, sound, and much more. A click of the mouse allows you to include formulas for the numbers, show the dates on a time chart, add checkmarks and other stylizing. Prioritize, sort, and search using any column to see just the information you need to see. Save views for instant access to specific information. Fair Witness is said to be one of the best programs used for planning. **Publisher: Chena Software, Inc. BUS0208**



\$315



Accountant, Inc. 3.0

"BEST ACCOUNTING PACKAGE" 1991 MacUser's Editors' Choice Award. More Features, more power, more flexibility. It's easy to use and gives you exceptional streamlining power. You only have to enter information once. Every transaction is automatically posted to your General Ledger. Accountant, Inc.'s new revolutionary System 7 design gives you the advantage of customizing your forms, screens and reports by hot linking with your favorite forms design, spreadsheet and database programs. You get Invoicing, Accounts Receivable, Inventory, Accounts payable, Check Writing, integrated General Ledger and Payroll. Accountant, Inc. is now available in single and multiuser versions. **Publisher: Softsync, Inc. FIN0048**



\$335

Many of our products come with a thirty day money back guarantee, if you are not completely satisfied. Ask for details when you place your order.

OVERNIGHT DELIVERY
ONLY \$3.00

ACCESSORIES

Full		
BND0077	MF2DD 100PK	59
BND0076	MF2HD 50PK	59
I/O Design, Inc.		
ACC0440	Ultimate Classic/SE Ext. Carrying Case	79
ACC0528	Ultimate Classic SE Carrying Case	65
ACC0665	PowerBook Carrying Case	75
LB Innovators		
BND0033	WristSaver/MousePad Bundle-Red	25
Targus, Ltd.		
ACC0252	MacPlus/SE Carry Case (black)	59
ACC0250	MacPlus/SE-Ext Keyboard Carry Case	75
ACC0675	Universal Notebook Case	69

BUSINESS & PRESENTATION

ASD		
BUS0207	Active Memory 2.0	125
After Hours Software		
DAT0076	TouchBASE 2.0	79
A Lasting Impression		
RESUM001	ResumeExpert: Word 30/4.0 version, Cover Letters, Manager, Sales & Marketing, Students, Computer Science & Engineering, Financing & Banking	49 ea.
Aldus		
BUS0066	Persuasion 2.1	325
Attain		
BUS0211	IN CONTROL 1.0	95
CE Software		
GRA0070	Calendar Manager 3.0	31
Chena Software		
BUS0208	Fair Witness 1.1	315
ChipsSoft		
FIN0132	MacInTax '91	42
FIN0135	MacInTax CT. State Supplements '91	42
Claris		
BUS0201	ClarisWorks	149
DAT0064	FileMaker Pro	205
UPG0005	FileMaker Pro Upgrade	99
BUS0058	MacProject II 2.5	345
BUS0178	Resolve	175
BUS0065	SmartForm Designer	289
JAM Software		
DAC0033	Smart Alarms 3.1 (1-4 users)	125
ACC0034	Smart Alarms 3.1 (5-8 users)	189
Lotus Development Corporation		
BUS0188	Lotus 1-2-3 for Macintosh	349
Meca		
FIN0039	A. Tobias' Managing Your Money 4.0	99
Microsoft		
BUS0167	Microsoft Excel 3.0	295
UPG0002	Microsoft Excel 3.0 Upgrade	119
BUS0008	Microsoft PowerPoint 2.01	245
BUS0181	Microsoft Project 1.1	445
BUS0186	Microsoft Schedule+ 5 Pack	125
BUS0014	Microsoft Works 2.0	155
BUS0088	The Microsoft Office 2.0	475
Now Software		
BUS0212	Now Up to Date-single	65
BUS0213	Now Up to Date-5 user	269
Pastel Development		
BUS0199	DayMaker	65
Power Up		
BUS0153	Address Book Plus 2.0	63
BUS0073	Calendar Creator	44
Reality Technologies		
FIN0068	WealthBuilder (Mac)	95
Round Lake Publishing		
BOK0026	Legal LetterWorks	45
BOK0007	LetterWorks	45
BOK0016	Sales LetterWorks	45
Softsync Publishing		
FIN0048	Accountant, Inc. 3.0	335
Symantec Corporation		
BUS0217	GreatWorks 2.0	199
BUS0055	More 3.1	265
Synergy		
STA0018	Kaleidograph 2.1	149
Teleware, Inc.		
FIN0087	M.Y.O.B. 3.0	139
Timeslips		
BUS0043	Timeslips III 2.1	195
T/Maker		
BUS0193	The PowerBundle	159
Visionary Software		
BUS0190	First Things First 2.0	45
Wyoming Software		
FIN0013	Business Sense 1.5	129

COMMUNICATIONS & NETWORKING

Argosy		
COM0098	RunPC/Network	279
COM0103	RunPC/Remote	139
CE Software		
COM0101	QuickMail 2.5 (1-5 users)	249
COM0100	QuickMail 2.5 (1-10 users)	375
Dayna		
NET0125	DaynaPORT E	275
NET0076	DaynaPORT E/SE	179
Ex Machina		
COM0111	Notify! 1.1 Personal Edition	109
Farallon Computing		
NET0210	PhoneNET EtherMac II/10T card/MacII	165
NET0211	PhoneNET EtherMac 301/10T card/SE/30	199
NET0212	PhoneNET EtherMac II Thinnest card/MacII	165
NET0213	PhoneNET EtherMac 301/10T card/MacII	299
NET0214	PhoneNET EtherMac 301/Thinnest card/SE/30	199
NET0215	PhoneNET EtherMac 301 Thinnest card/II	299
NET0007	PhoneNET Plus, SE & II	31
NET0019	PhoneNET StarController	879
NET0122	Timbuktu® 4.0	129
NET0034	Timbuktu/Remote® 3.0	129
FreeSoft		
COM0060	White Knight V.11	85
Insignia		
COM0107	Soft PC Universal 2.5	195
Hayes		
COM0095	HayesConnect 3.0	89
COM0015	Smartcom II 3.3	84
Microcom		
NET0131	Carbon Copy Mac 2.0-Single	59

Pacer Software

NET0167	PacerForum-5 Client	349
COM0106	PacerTerm	159
Silka		
NET0049	MacTOPS 3.1	187
Synergy		
COM0003	VersaTerm Pro 3.6	177
COM0002	VersaTerm 4.6	90
TechWorks		
NET0153	GraceLAN 2.0 50-user	289

DESKTOP PUBLISHING

Aldus		
DTP0072	PageMaker 4.2	495
UPG0003	PageMaker 4.2 Upgrade	150
DTP0040	Personal Press 1.01	99
Quark, Inc.		
DTP0071	XPress 3.1	569

DISK DRIVES & BOARDS

Computer Care		
DRI0336	Mac Rescue	195
DRI0479	BookRAM 2S	249
Mass MicroSystems		
DRI0253	DataPak 45 Removable	649
DRI0254	DataPak IIC	735
DRI0354	DataPak 88 Classic	849
DRI0451	DiamondDrive 120 MB Fixed Drive	649
DRI0453	DiamondDrive 320 MB Fixed Drive	1699
DRI0452	DiamondDrive 210 MB Fixed Drive	1049
DRI0454	DiamondDrive 510 MB Fixed Drive	2149
Micron Technology		
DRI0412	Xceed MacroColor II 24-Bit Video Card	469
Peripheral Land, Inc.		
DRI0375	Infinity 88 Removable single	849
DRI0115	Infinity Turbo 40 Meg Removable	649
PowerUser™		
BND0094	44 Meg Removable-cartridge	799
BND0095	88 Meg Removable-cartridge	579
DRI0203	40 Meg External Hard Drive	349
DRI0204	60 Meg External Hard Drive	399
DRI0205	80 Meg External Hard Drive	449
DRI0326	100 Meg External Hard Drive	499
SuperMac		
DRI0437	Spectrum/8 24 PDO	899
DRI0516	Spectrum/24 Video Mac II Card	1099
DRI0517	Spectrum Series III Accelerator Card	499
DRI0440	Spectrum/8si	539
DRI0442	Spectrum/8 SeriesIII	539

EDUCATIONAL & ENTERTAINMENT

Amaze! Inc.		
ENT0400	The Far Side Computer Calendar	45
Artworx		
ENT0303	Bridge 6.0	29
ENT0417	Kaleidokubes	19
Baseline		
ENT0403	Talking Moose/Cartoon Carnival 4.0	23
Broderbund		
GRA0268	Kid Pix 1.2	35
ENT0291	Where is Carmen Sandiego?	ea. 29
ENT0284	SimCity	29
EDU0291	The Playroom-Coder	29
Centron Software, Inc.		
ENT0329	BlackJack Strategy Tester/BlackJack Ace	65
ENT0384	Canis	27
ENT0277	Casino Master Standard Version	40
ENT0289	Casino Master Deluxe Color Version	45
ENT0383	PuzzleMaster	29
MECC		
ENT0381	The Oregon Trail	29
EDU0190	Number Munchers	29
EDU0191	Word Munchers	29
Nordic Software		
EDU0276	Word Search Deluxe	35
EDU0142	Preschool Pack	35
Penton Overseas (Full line available)		
Picture II Level I	Spanish, German, French, Italian	ea. 42
VocabulEarnice Level I, II or III	French, German, Hebrew, Italian, Japanese, Russian or Spanish	ea. 42
Personal Training System		
Macintosh, HyperCard, FileMaker Pro, Microsoft Excel, Microsoft Word, Aldus PageMaker 4.0, Aldus FreeHand, Aldus Persuasion, Quark XPress 3.0		ea. 59
EDU0277	Converting to System 7-part 1	59
EDU0278	Converting to System 7-part 2	59
Sir Tech Software, Inc.		
ENT0346	Bane of the Cosmic Forge	35
Sound Source		
Star Trek Vol. 1 or II SPECIAL		ea. 29
Velocity		
ENT0409	Spectre-Battle Action (Single)	37
Zondervan Publishing House		
BOK0022	MacBible-Greek	79
BOK0021	MacBible - King James Version	79
BOK0033	MacBible NRS w/Apocrypha	79
BOK0020	MacBible - New International Version	79

ADOBES SYSTEMS, INC.

COM0028	Adobe TypeAlign	62
COM0024	Adobe Type Manager 2.03	59
FON0351	Adobe Type On Call	59
FON0295	Adobe Type Reunion	41
Altys		
FON0014	Fontographer 3.4	285
FON0284	Metamorphosis Pro 2.03	59
Ares		
FON0361	FontMonger	62
Broderbund		
FON0439	StyleType 2.0 w/ATM	127

GRAPHICS & MULTIMEDIA

Abacadata		
CAD0032	Design Your Own Home-Architecture	65
CAD0033	Design Your Own Home-Interiors	65
CAD0034	Design Your Own Home-Landscapes	65
Adobe Systems, Inc.		
GRA0304	Adobe Premiere	305
DTP0054	Illustrator 3.2 (w/ATM 2.0)	369
GRA0125	Streamline 2.0	122
GRA0191	PhotoShop 2.0	549

Aldus		
GRA0092	Digital Darkroom 2.0	259
GRA0305	FreeHand 3.1	395
GRA0279	Gallery Effects Vol. I	129
GRA0131	Super 3D 2.5	325
HYPO027	SuperCard 1.6	195
GRA0112	SuperPaint 3.0	133
Claris		
CAD0029	ClarisCAD 2.0	625
GRA0271	MacDraw Pro	275
UPG0004	MacDraw Pro Upgrade	99
GRA0117	MacPaint 2.0	89
Denba		
GRA0280	Canvas 3.0	249
Dream Maker		
GRA0105	Cliptures Vol. 1 Business Images	69
Graphsoft		
CAD0024	Blueprint 2.1	219
Innovative Data Design		
CAD0039	MacDraft 2.1	279
PC Globe		
GRA0245	MacGlobe	45
Metro Image Base (Full line available)		
GRA0277	Metro-ImageBasics	35
Pixar		
GRA0288	MacRenderMan & Showplace Bundle	619
Praxitel		
UTI0211	Read My Lips	75
Ray Dream		
GRA0292	Ray Dream Designer 2.0	589
Softsync		
GRA0318	ExpertColor Paint	29
Virtus		
GRA0278	Virtus WalkThrough	249

PERIPHERALS

Caere		
INP0205	Typist Plus Graphics	475
Microtek		
INP0180	Microtek ScanMaker 600ZS	1449
Sharp		
COM023	Wizard Or 8200 (128Kram)	399
SuperMac		
MON0224	20" SuperMatch Color Display	1799
ThunderWare		
INP0116	LightningScan 400	399
INP0189	LightningScan Pro 256	499

INPUT & OUTPUT

Articulate Systems		
INP0160	Voice Navigator II	599
INP0206	Voice Impact Pro	199
INP0207	Voice Impact	79
INP0208	Voice Record 2.1	59
Canon		
INP0184	Still Video Camera Computer Imaging Kit Color	899
INP0186	Still Video Camera Standalone Camera	499
CoStar		
INP0196	AddressWriter Envelope Printer	479
INP0194	Stringray	89
Kensington		
INP0060	Turbo Mouse ADB (SE or II)	109
Key Tronic		
INP0156	MacPro Plus	145
Microtouch		
INP0084	The UnMouse	159
Mouse Systems		
INP0132	Little Mouse ADB	74
INP0163	A3 Mouse	85
INP0199	A3 Trackball	85
Sophisticated Circuits		
ACC0535	Power Key w/Quickkeys Lite 2.0	75
Wacom		
INP0179	Digitizing Tablet 6" x 9"	589

UPGRADES & ACCELERATORS

DayStar Digital		
PowerCache 33 MHz		749
PowerCache 33 MHz w/882		979
PowerCache 40 MHz		849
PowerCache 40 MHz w/882		1199
PowerCache 50 MHz		1459
PowerCache 50 MHz w/882		1799

- All major credit cards accepted. No surcharge.
- Your credit card will not be charged until your order is shipped.
- If we ship a partial order, we pay the freight on the remaining portion.
- All U.S. shipments are insured at no extra charge.
- C.O.D. orders accepted (add \$6.00 including shipping)-\$1,000 maximum.
- Cash, money order, or cashier's check.
- Corporate purchase order accepted subject to credit approval.
- All products are covered by a 120 day limited warranty.
- Sales Tax: CT residents add 6%, NJ residents add 7%, Ohio residents add appropriate tax.

- SHIPPING**
- All orders add \$3.00 per order. We ship Airborne Express overnight unless UPS Ground delivers overnight. (Some rural areas require an extra day.)
 - Orders placed by 12:00 MIDNIGHT (EST) (weekdays) for "in stock" items ship same day (barring system failure, etc.) for overnight delivery.
 - C.O.D. orders ship via UPS (Blue Label) if you are more than 2 days from us via UPS Ground). Charge is \$6 including shipping.
 - Alaska, Hawaii, outside continental U.S., APO/FPO call 908-367-0440 for information.

*Defective software replaced immediately. Hardware replaced or repaired at our discretion. **We regret that we cannot be responsible for typographical errors.*

I'm Kerry, call me at:

MacWAREHOUSE
1-800-255-6227
(1-800-ALL-MACS) Now works in Canada.
Inquiries: 908-367-0440 FAX: 908-905-9279 (NOTE NJ AREA CODE)
1690 Oak Street, P.O. Box 303
Lakewood, NJ 08701

NEW! Express Customer Service Number:
1-800-445-9677
For faster service for existing customers our computers recognize incoming calls by the telephone number and instantly locate your records.



The PowerUser[®] Hard Drive from MacWarehouse

MACWAREHOUSE TAKES THE HARD WORK OUT OF BUYING A HARD DRIVE.

The PowerUser[®] Hard Drive is loaded with all the features you'd expect from a top quality drive. It's made for MacWAREHOUSE by a leading manufacturer - to our exacting specification. Its superior design fits right under the Mac Plus, Classic or SE, bringing the screen up to a convenient height.

STATE-OF-THE-ART COMPONENTS.

The PowerUser[®] Drive is packed with quality components. There's a rear panel SCSI address

drive includes the popular "Disk Manager Mac" software by On Track, and is pre-formatted - ready to use right out of the box. Each unit goes through quality control and testing before it leaves the factory. The comprehensive "User Manual" includes all the necessary step-by-step instructions.

THIRTY-DAY MONEY BACK GUARANTEE.

Try the PowerUser Hard Drive for thirty days, and if you're not completely satisfied, call us for an RMA number and return it with all of its documentation for a full refund.

PowerUser[®] Removable Hard Disk Drives: For The Ultimate In "Transportability."

The ideal solution for Mac users who want their data "to go", PowerUser Removables offer both the traditional 44 MB or the new 88 MB capacity. If you're a traveler, just pop out the removable cartridge and take it with you. If you're stationary, but need your data to travel, then these drives are definitely for you. Removable feature industry standard Syquest mechanisms, with a space-saving design that compliments all compact Macs.

BND0094 44Meg Removable \$579
BND0095 88Meg Removable \$799



selector switch, two 50-pin SCSI connectors, and removable internal SCSI terminators. Each

The PowerUser Hard Drive is covered by a one year manufacturers warranty and, if you do ever have a problem, the MacWAREHOUSE loaner drive program guarantees you'll never be without a drive for more than a few hours.

40MB Hard Drive	\$349	100MB Hard Drive	\$499
60MB Hard Drive	\$399	200MB Hard Drive	\$899
80MB Hard Drive	\$449	320MB Hard Drive ..	\$1499

Each unit goes through quality control and testing before it leaves the factory. The comprehensive "User Manual" includes all the necessary step-by-step instructions.

1-800-255-6227


Overnight Delivery only \$3.00

Call 24 hours a day, 7 days a week
© 1992 Micro Warehouse Inc.


Tomorrow's Upgrade For Your Mac Is Only \$45

A MacWarehouse Expansion Kit will dramatically increase the power of your Mac. And our fast, reliable overnight service will have your kit in your hands tomorrow!


*(Ask for item #CHP0012 1MB 120ns.....\$45.)

	STANDARD	FOR 2MB	FOR 2.5MB	FOR 4MB
	1MB SURFACE MOUNT	ADD A 1MB EXPANSION CARD	ADD A 1MB CARD & 2-256K SIMMS	ADD A 1MB CARD & 2-1MB SIMMS OR ADD A 3MB EXPANSION CARD
MACINTOSH CLASSIC				



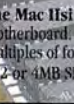
The Mac Classic comes with a standard 1MB of memory, which is surface mounted (soldered) to the motherboard. Additional memory for your Mac Classic is provided by an Expansion Board, which slides into a slot on the Classic's motherboard. The Expansion Board can be purchased with 1MB of memory (for a total of 2MB), and then two 1MB SIMMS can be added to the Expansion Board later, for a total of 4MB. Or, you can install a 3MB Expansion Board, which brings your Mac Classic up to its full 4MB. **CHP0050 1MB Expansion Board.....\$79** **CHP0051 3MB Expansion Board.....\$179.**

	STANDARD	FOR 2MB	FOR 2.5MB	FOR 4MB
	4-256K SIMMS	ADD 2-1MB SIMMS	ADD 2-1MB SIMMS & 2-256K SIMMS	ADD 4-1MB SIMMS
MACINTOSH PLUS & SE				


The Mac Plus and Mac SE have four available slots on the motherboard, which originally contain four 256K SIMMS modules - totalling 1 megabyte (1MB) of memory. To upgrade, you can replace each 256K module with a 1MB module, but you must do this in pairs. Replace two 256K modules and you will have a total of 2.5MB of memory. (That's the two new 1MB modules plus the original two 256K modules.) Replace all four modules and you'll have 4MB. (You should save the 256K modules for later use if you want to pass your Mac on to someone else.)

	STANDARD	FOR 4MB	FOR 6MB	FOR 10MB
	2MB SURFACE MOUNT	ADD 2-1MB SIMMS	ADD 2-2MB SIMMS	ADD 2-4MB SIMMS
MACINTOSH LC				

The Mac SE/30, II, IIx, IIcx, and IIfx each come with a total of eight slots. The standard configuration has four 256K SIMMS modules, or a total of 1 MB. Here, memory must be upgraded in multiples of four. This allows for expansion from 1MB to 4, 5 or 8MB on the II and IIx, and up to 32MB on the SE/30, IIcx and IIfx, depending on whether you are using 1MB, 2MB or 4MB SIMMS. If you are upgrading a Mac IIfx, you must use SIMMS rated at 80ns or faster.

	STANDARD	FOR 4MB	FOR 5MB	FOR 8MB	FOR 9MB (IIfx only)	FOR 16MB (IIfx only)	FOR 32MB
							
	4-256K SIMMS	ADD 4-1MB SIMMS					
			ADD 4-1MB SIMMS & 4-256K SIMMS	ADD 8-1MB SIMMS	ADD 4-2MB SIMMS & 4-256K SIMMS	ADD 8-2MB SIMMS	ADD 8-4MB SIMMS

The Mac IIfx comes with a standard 1MB of memory, which is surface mounted (soldered) to the motherboard. Four slots are available for additional memory, and you must upgrade your Mac IIfx in multiples of four. The Mac IIfx is expandable to 5, 9 or 17MB, depending on whether you are using 1, 2 or 4MB SIMMS, and the SIMMS modules must be rated at 100ns or faster.

	STANDARD	FOR 5MB	FOR 9MB	FOR 17MB
	1MB SURFACE MOUNT	ADD 4-1MB SIMMS	ADD 4-2MB SIMMS	ADD 4-4MB SIMMS

The Mac LC comes with a standard 2MB of memory, surface mounted (soldered) to the motherboard, with two slots available for additional memory. The Mac LC can be upgraded to 4, 6, or 10 MB, depending on whether you are installing 1, 2 or 4MB SIMMS.

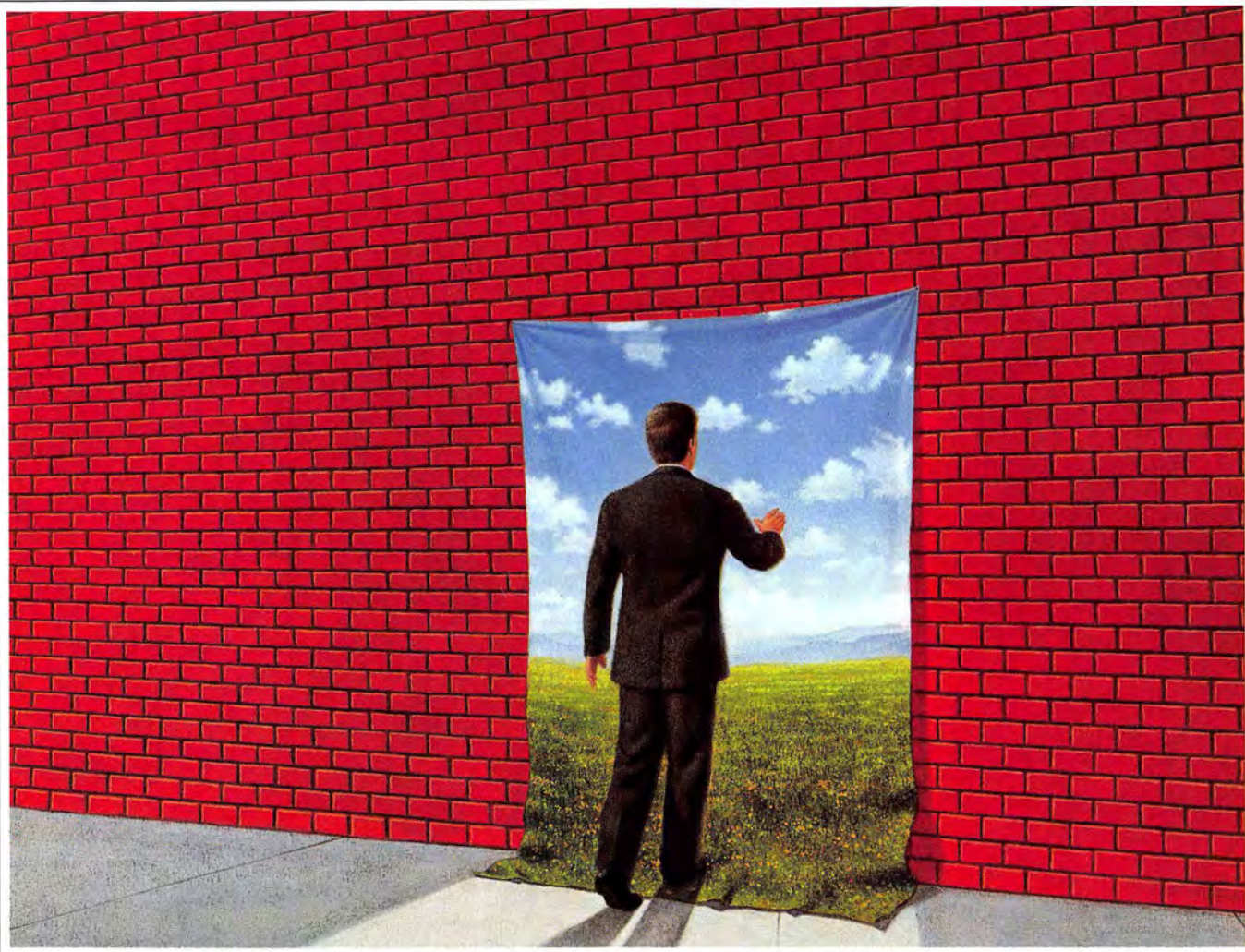
CHP0012	1MB SIMMS - 120ns	\$45
CHP0013	1MB SIMMS - 100ns	\$55
CHP0022	1MB SIMMS - 80ns	\$59
CHP0008	1MB SIMMS - 70ns	\$69
CHP0042	2MB SIMMS - 80ns	\$99
CHP0011	4MB SIMMS - 80ns	\$159

FREE STEP-BY-STEP VIDEO INSTRUCTIONS** Ask for item #AAA0004 and receive our Free* video when you purchase two or more SIMMS modules.

CIRCLE 156 ON READER SERVICE CARD.

MUE2P

**Mac
WAREHOUSE[®]**



Easy NetWare Access For Macintosh.

Now there's an amazing new way for Macintosh users to step into the world of NetWare. Quickly, easily and affordably.

It's a clever new product from Dayna called NetMounter. A simple utility that lets any Mac user access NetWare servers without having to install NetWare for Macintosh.



At just \$99, Macintosh access to NetWare has never been this affordable.

NetMounter gives you instant access to NetWare servers and all the information they contain with point and click simplicity. Server volumes appear as icons on the Mac desktop, and directories and files are shown as folders and documents. You can read and write files on

NetWare 2.15, 2.2 and 3.11 servers while keeping full access to your AppleShare file and print services.

All the advantages of NetWare are right at your fingertips with all the benefits you've come to expect from your Mac. Trust Dayna to do the impossible so easily.

Ask your dealer about NetMounter today. Or call (801) 531-0600 ext. 351 for more information on fast, easy NetWare access.

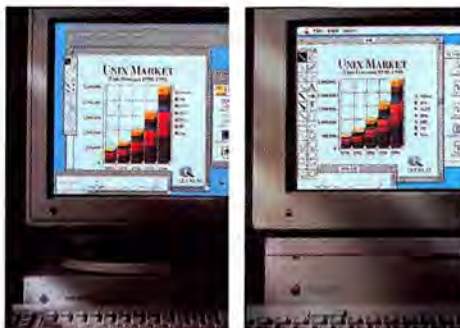


We Connect People And The Computers They Use.SM

IBM's Networking Systems division may seem like an unlikely place to develop an AppleTalk router, but stranger things have happened. IBM's 6611 Network Processor (catchy name, huh?) is a multiprotocol bridge/router that supports such protocols as AppleTalk (EtherTalk and TokenTalk only; not LocalTalk), TCP/IP, DECnet, SNA, and IPX (NetWare). The four-slot Model 140 will list for \$9,995, the seven-slot Model 170 for \$18,640. Available in late summer.

By Henry Bortman

Mac apps on UNIX: A/UX? PowerOpen? Nope. Quorum's Compatibility Engine, which enables Mac programs to run under UNIX without looking Mac-like. The Compatibility Engine maps Mac-style menus, dialog boxes, buttons, scroll bars, and the like to the equivalent elements of UNIX-workstation graphical interfaces such as OPEN LOOK (Sun SPARCstations) and Motif (Silicon Graphics IRIS workstations). Sun and Silicon Graphics were among the first vendors to announce support for Quorum's products. Mac applications behave functionally on UNIX workstations as they do on the Mac, but they don't retain the copy-me-and-I'll-sue-the-pants-off-you Mac look and feel. ★ **Quorum offers two products:** Latitude, available in the first half of 1992, lets developers recompile Mac-based source code to create a new version of their programs that runs under UNIX. Aldus, Quark, and Adobe have all hinted that they are interested. Quorum Equal, available in the second half of 1992, will emulate the Mac's 680x0 processor on a UNIX RISC machine, enabling users to run virtually any Mac application on UNIX workstations without modification. Pricing was not available for either product at press time. (415) 323-3111.



Still more UNIX: NeXT is back in the news, with Release 3.0 of its NeXTstep operating system, scheduled to ship this spring, and 33-megahertz versions of its 68040-based workstations. Of note for Mac users: NeXTstep 3.0 includes AppleShare- and NetWare-client software and allows NeXT computers to read Mac-formatted 1.44-mega-byte floppy disks directly. Built in to NeXTstep 3.0 is an interactive version of Renderman, Pixar's powerful 3-D-rendering software, and a database toolkit that simplifies the process of developing front ends for mainframe database-management systems. For those partial to Intel chips, NeXT will offer a 486-based version of NeXTstep 3.0, scheduled to be available in late summer. (415) 366-0900.

UNIX at your service: If AppleShare 3.0 is too sluggish for you, you might want to move up to Helios' EtherShare 2.0.1, which runs on DEC, IBM, Sony, and Sun UNIX machines. This comprehensive package provides an AFP-compliant file server, a print spooler, and E-mail capabilities as well as an AppleTalk router with an AFP-to-NFS gateway. An EtherShare file server can support as many as 245 concurrent users. \$4,495 for workstations; \$5,995 for servers. (408) 864-0690. ☐





There's no better way to communicate than PersonToPerson.



Asanté™, the leader in Macintosh networking introduces an array of messaging tools that bring the personal touch back to inter-office communication.

Tools that make this the only sure way to get your message delivered.

With PersonToPerson™ software, you can now send voice mail messages across the network, check whether a co-worker is in or out of the office, or use the electronic Post-it™ Note window to leave someone a message. You also get a built-in calendar with timed reminders for appointments. And

the personalized screensaver lets you leave messages on your screen while you're away from your desk.

It's all done without the added expense of a dedicated Macintosh® server.



[Express Out Mailbox]



[Personalized Screensaver]



[Built-in Calendar]



[Electronic Notepad]



[In/Out Board]

And our simple, one-button installation loads the program as an INIT.

And because PersonToPerson

ASANTÉ
ALL THE RIGHT CONNECTIONS™

automatically sends messages when you attach your Macintosh to the network, it's a great tool for PowerBook users who create and send messages when out in the field.

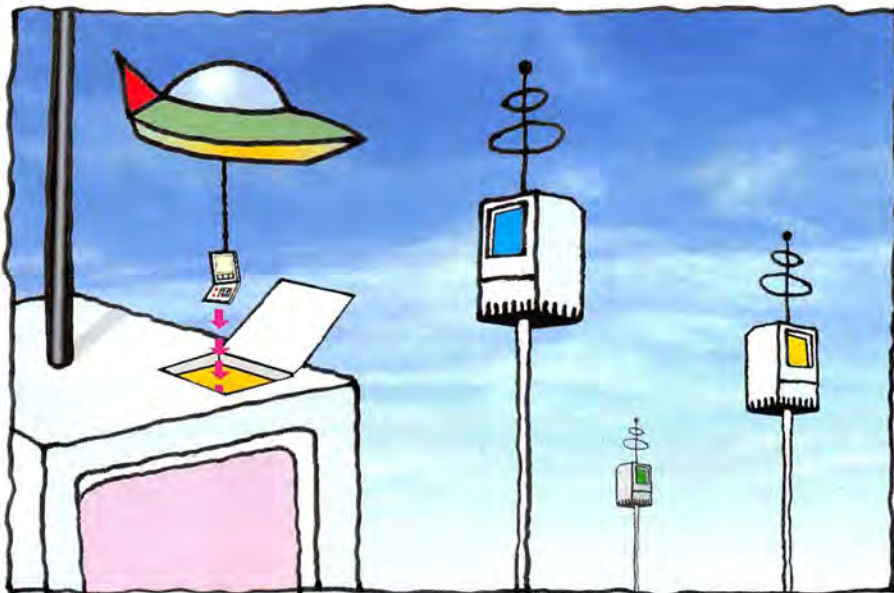
So now your company or departmental work group can interact the best way there is—PersonToPerson.

Resellers: Asanté products are available from Ingram Micro, Tech Data and Macamerica.

Have Data, Will Travel

Having problems connecting your palmtop or laptop to your Mac? Getting data across may be easier than you think.

By Andy Ihnatko



So maybe the PowerBook's not your style. Sure, as five-to-seven-pound Macs go, it's great, but some of us want to operate more like the Jetsons. After all, this planet is crammed to the gills with tiny electronic devices. We've got laptop word processors, palmtop computers, executive organizers — even data-bank wristwatches that make the thought of cheating on an exam by writing the answers on your socks seem rather quaint. We're surrounded by these cool portable data buckets — but how do we make them talk to our Macs when we get back home? Are we stuck buying only products that advertise "Mac connectivity" kits — which usually cost at least as much as four Tom Clancy hard covers?

Take heart. Fact is, if a data bucket has a serial port and some sort of communications utility, you can use common interfaces and data formats to put together your own "connectivity solution." All you have to do is save the file in a format your Mac can read, find a way to cable the two computers together, and then run software to transmit the file. It's that simple! Well, almost.

Data-Sharing Secrets Revealed!

The first question is, "Does my data bucket store data in a format my Mac can understand?" No problem! All computers smaller than a two-car garage use the ASCII standard to represent alphanumeric data — letters, numbers, and symbols — internally. You can

generally fall back on the ASCII file format to move data from one piece of software to another, because almost all of them can read from and write to the ASCII format. Be forewarned, however: Passing straight ASCII text is a good way to lose all of your file's formatting information (which text is in italics, where a new row starts on a spreadsheet, and so on).

The best solution is to find a more advanced file format that your portable and your Mac software both recognize. You can save most palmtop spreadsheets in WK1 format, which most Macintosh spreadsheet programs can open directly. Similarly, you can often save database files in dBASE format (DBF), which many Macintosh database programs can open. Word-processing formats are less universal, but you may be able to save your word-processing files in WordPerfect or Microsoft Word format. If your Macintosh software can't import these formats directly, you can buy a commercial data-translation utility such as DataViz's MacLinkPlus/PC (which includes a serial cable as well as data translators for many types of data) or Argosy's Software Bridge (for word-processing-format translations) to help your data make the leap.

If your data bucket isn't friendly enough for this answer, don't despair. You still have some options for adding transferrable formatting information to your ASCII files, if you don't mind getting fairly friendly with the nuts and bolts of RTF (Rich Text Format) or tab-delimited format.

RTF is a word-processing format in which text-formatting commands are embedded within the text itself. For example, "Fleshy-headed *mutant*" looks like this: "Fleshy-headed {\i mutant}" — and there's lots of header information (about fonts, margins, and the like) in front of it. Normally this RTF "code" is generated by a word processor, but it's possible to write it all in by hand as you compose the document on your data bucket. You can download complete documentation on the RTF format from ZiffNet/Mac, *MacUser's* on-line service. Look for the filename RTFDOC.TXT in Library 7 (Reference) of the Download & Support Forum.

The tab-delimited format, which most spreadsheet and database software can read, is much more straightforward. A spreadsheet has each of its rows on a separate line, with tabs separating the data in individual columns. In a database, each line is a separate record, with tabs separating the fields within each record.

Rolling your own tab-delimited files can add a lot of flexibility to a data bucket. Almost all palmtops, for instance, have some sort of text editor built in, but many lack a spreadsheet program and only a few have a database manager. If your primary on-the-road use for these two programs is data entry, you can use your text editor to enter the data once you know how your Macintosh spreadsheet and database files are structured.

Say you want to collect data for a File-Maker contacts database, with Name, Title, and Company fields, in that order. Using your palmtop's word processor, you can easily construct a tab-delimited database file by hand, using the format shown in Example 1.

When you import the data into File-Maker, it'll work like a charm — just as though you'd blown four grand on a PowerBook and had a Mac with you on the road. But because you didn't, you still have to deal with the question of how you're going to pour that data from your data bucket into your Mac.

Making the Connection

If you're lucky, both of your devices will have fairly standard RS-232 connectors. RS-232 is the universal serial-interface standard — it does for data transmission what ASCII does for representing numbers and letters (the Macintosh uses an RS-422 interface, which is 232 with a few enhancements). A full-blown RS-232

Table 1: The Most Popular RS-232 Connections

Pin	Name	Function
1	PG	Protective Ground
2	TD	Transmit Data
3	RD	Receive Data
4	RTS	Request To Send
5	CTS	Clear To Send
6	DSR	Data Set Ready
7	SG	Signal Ground
8	CD	Carrier Detect
20	DTR	Data Terminal Ready
24	(E)TC	External Transmitter Clock

Table 2: Tandy WP-2 Pinout

Pin	Name	Function
1	CD	Carrier Detect
2	RD	Receive Data
3	SD	Send Data
4	DTR	Data Terminal Ready
5	SG	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send

Table 3: Macintosh Serial-Port Pinout

Pin	Name	Function
1	DTR	Data Terminal Ready
2	CTS	Clear To Send
3	SD	Send Data
4	SG	Signal Ground
5	RD	Receive Data

connector consists of 25 pins, each of which has its own function. Table 1 lists the important pins and what they do, but you won't need to know these details if the strategy I'm about to describe (*The Easy Case*) works. If it doesn't, you'll have to pull out your line tester and breaker box and resort to the strategies described in *The Gnarly, Difficult Case*. We'll get to that later.

The Easy Case: Laptop PC/Generic Device. If your portable device has an RS-232 connector of the type represented in Table 1, you should be in luck. Boy, is this one easy. Plug a Mac modem cable in

to your Macintosh. Plug an IBM-type modem cable in to the laptop. Each of these cables will end in a standard 25-pin connector. To link the two, get a null-modem adapter (see the "Tools of the Trade" sidebar). You may have to stick a gender changer in there too.

Next, run communications software on both computers. A generic telecommunications program such as ZTerm (freeware you can get from on-line services or Macintosh user groups) doesn't have the friendly face of a custom-written palmtop-to-Macintosh file-transfer program, but it does precisely the same job. Get this

program running on each machine, with identical communication settings (transmission rate, data bits, stop bits, parity). The actual settings aren't important at this stage; you just want to find out whether or not your cable configuration works. For the sake of accuracy, though, set the transmission rate to something slow, either 300 or 1,200 bits per second.

Now type on the laptop's keyboard. If everything's hunky-dory, the words should appear on your Macintosh's screen. Try it the other way around too. If you can type from the Macintosh's keyboard to the laptop's screen, you will know you have a solid connection for transmitting files.

By the way, don't be surprised if either or both of the computers don't echo what's being typed on their own keyboard. Normally you won't see what's being typed "locally" unless the program's local-echo feature has been enabled.

If the two machines don't seem to be communicating or if nothing but garbage seems to be coming through, check to make sure that all the cables are securely fastened and that the communications parameters for the two programs are identical. If the cause of the problem doesn't turn up in these areas, then it's time to resort to the strategies described in the next example.

The Gnarly, Difficult Case: The Tandy WP-2 Portable Word Processor. Gnarly, difficult cases are never generic, so I need to use a specific example here (which will explain many universally applicable techniques, of course). In this case, let's say that you used a null modem and a gender changer, as with the DOS laptop, and tried to get a Tandy machine talking to a Mac. No dice. You look at the pinout for the WP-2's serial connector (see Table 2) and the corresponding pinout for the Mac (see Table 3). This situation calls for a line tester and a serial breakout box (see the "Tools of the Trade" sidebar).

The line tester helps you figure out which signals are necessary for data communications and which aren't. Once you've plugged the WP-2 in to the line tester, the LEDs corresponding to DTR (Data Terminal Ready), DSR (Data Set Ready), and CTS (Clear To Send) light right up, which tells you that these three signals are necessary. If one of them is connected incorrectly, the cable Just Plain Won't Work. These three signals allow communications to start — or prevent them from starting.

Because this sort of problem usually requires trial and error, you use the breakout box to test various configurations until you find one that works. You start by following the two basic rules of wiring two computers together: The SG (Signal Ground) pins must be connected, and the SD (Send Data) pin of each device must be connected to the RD (Receive Data) pin of the other.

Now you have to deal with the remaining pins of interest, RS-232's traffic-control signals: the Mac's DTR and CTS and the WP-2's DTR, DSR, and CTS. Here's what these signals do, roughly speaking: The DTR and the CTS pins are usually connected in crisscross fashion, as the SD

and RD pins are. Although the pins' uses vary, most often the two devices use them to signal each other that they're powered up and ready to go.

A DSR pin's function is similar to a DTR pin's. Because the Mac's serial ports have no DSR pin, the WP-2's DSR pin can perform no useful function in this case except to cause things not to happen — in spectacular fashion — if it's not connected to *something*. A DSR pin normally allows communication to take place if it receives a CTS signal, so you can bamboozle it by connecting it to its own CTS pin, on that same connector.

With the breakout box, you set up the configuration in Example 2.

Example 1: Database Records in Tab-Delimited Format

```
Greer Grant <Tab> Exec. VP <Tab> Felix Ltd. <Return>
Frank Castle <Tab> Consultant <Tab> Kevlar World <Return>
```

Example 2: Mac-to-Tandy WP-2 Pin Connections

Macintosh pin 1 (DTR) to Tandy pin 8 (CTS)	Macintosh pin 4 (SG) to Tandy pin 5 (SG)
Macintosh pin 2 (CTS) to Tandy pin 4 (DTR)	Macintosh pin 5 (RD) to Tandy pin 3 (SD)
Macintosh pin 3 (SD) to Tandy pin 2 (RD)	Tandy pin 6 (DSR) to Tandy pin 8 (CTS)

Figure 1: Tip for Creating a Custom Cable

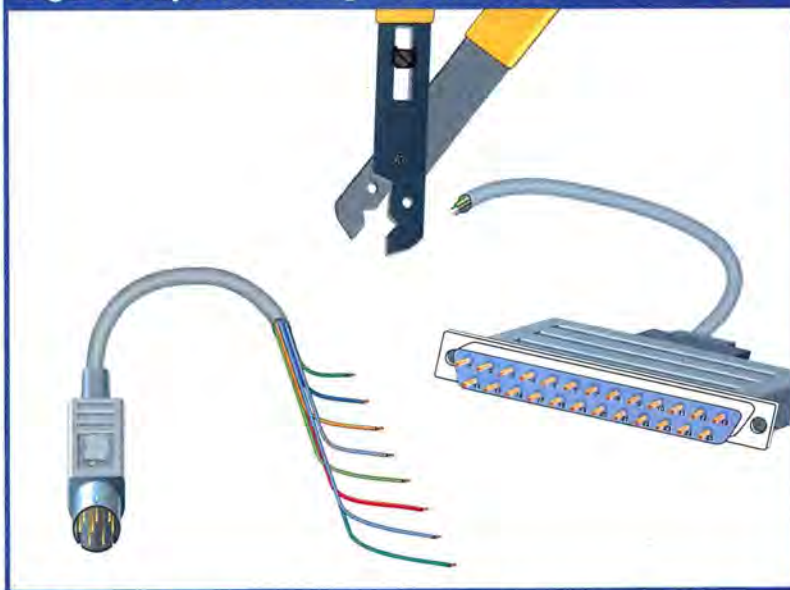


Figure 1: Apprehensive about soldering a mini-8 connector? Do it the easy way! Just cut off the modem end of a Macintosh modem cable, so you've got a mini-8 and a cable, and then solder the wires at the cut end to your other connector.

BRIDGES CONNECTIVITY

Lo and behold, it works! Admittedly, I'm not writing about the hour I spent trying strategies that *didn't* work, but you get the general idea. For a more in-depth discussion of tackling RS-232 connection problems, consult Joe Campbell's *The RS-232 Solution* (Alameda, California: Sybex, 1989; \$24.95) — it's unquestionably the best book on the subject, mixing hard details with practical tips and examples.

A Permanent Connection

If you're doing only one or two transfers, you may as well just use the breakout box as a customized null-modem adapter. To build a classy-looking cable, though, fire up a soldering iron to permanently forge the connections you've made with the breakout box.

For most of the cables you'll build, all the necessary parts (a Macintosh connector at one end, a foreign connector at the other, and a hunk of five-conductor wire in between) are available at your local Radio Shack. Almost all the foreign serial

Tools of the Trade

Sure, you may be able to get by with just a soldering iron, but purchasing a few inexpensive gizmos can give you a formidable arsenal for solving cabling problems. All can be found at your local electronics store.

•**Breakout box.** It's indispensable when you don't know what you're doing. Stick it between the two computers, and then try various configurations just by plugging in jumpers between numbered holes.

•**Gender changers.** These snap on to the end of a cable, allowing you to use a male cable with a female socket and vice versa.

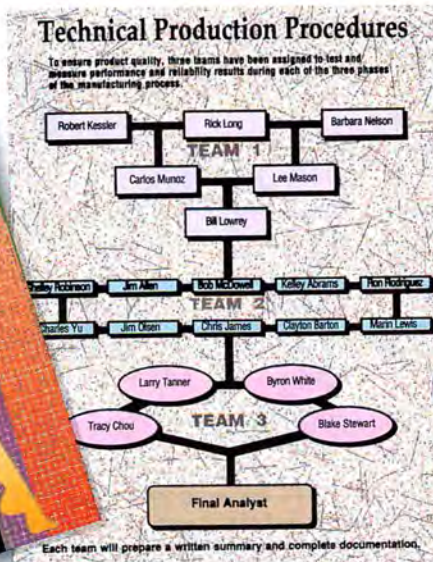
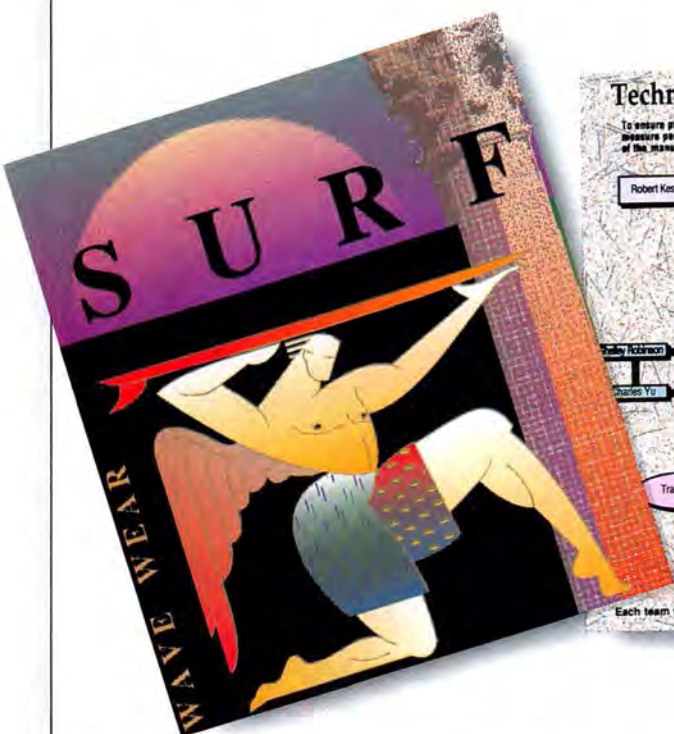
•**Line tester.** Exactly what a computer tool should be: a compact plastic box studded with flashing LEDs. Each light represents a line of the interface that's "awake" and needs to be tended to for communications to work properly. Tools that combine a breakout box with a line tester are also available.

•**Null-modem adapter.** Use one of these as your "first guess" when trying to get two computers to talk to each other. Inside, they're wired to make the interconnections that most devices need for proper communication.

connectors you'll ever run across will be either DB-9s (9-pin, D-shaped connectors) or DB-25s (25 pins). The Macintosh serial connector, whose technical nomenclature is 8-pin mini-DIN or simply mini-8, can be far trickier to find, however. Many electronics stores do not carry them.

I recommend avoiding mini-8 connectors for projects such as this, because they're tiny and darn near impossible to solder neatly. Whenever I whip up a cable, I just get a standard Macintosh modem cable, lop off the modem end, and then solder that free end into whatever connector I need. It costs about six dollars

It's a graphics program. It's a business program. Is not.



more, but the time I save and the frustration I avoid are well worth the modest expense.

Transferring Files

Ahh... good to have all that hard work behind you, eh? A mere cakewalk lies ahead. If you've been following instructions and not merely reading along, you've already managed to assemble a working cable. You also have communications software running on each machine, and you've verified the connection by typing on both keyboards. All that remains is to jack up the transmission speed as high as you can and transfer the file. In theory, you should be able to zip the file through at 57,600 bps, but in practice, you'll find that things will begin to go haywire once you've broken 9,600. To find the fastest speed your setup can attain, start at around 300 bps and keep increasing the speed until what you type at one end no longer comes out at the other end. A rather empirical solution, but it works.

Finally, choose a good file-transfer

protocol that's common to both machines. Most palmtops don't have nifty protocols such as Zmodem built in, so you'll probably have to settle for plain old Xmodem (known as Modem7 on older machines). Give the command for one machine to transmit a file, and then tell the other one to start receiving. A few seconds later, the transfer will finish. Things shouldn't really go wrong at this point if you're using the same transfer protocol on both machines; if they do go wrong, reverify that the communications settings are correct and that your cables haven't come loose.


The Bottom Line

Packaged connectivity solutions for Macs and DOS portable devices make life easier, but you can't always find one that meets your needs and that doesn't cost more than you want to pay. The techniques I've described here can free you from depending on commercial solutions — and also enhance your prestige! There's nothing quite like the looks of admiration and rapt attention you attract

Directory

Software Bridge
Argosy Software, Inc.
113 Spring Street
5th Floor
New York, NY 10012
(212) 274-1199
\$159

MacLinkPlus/PC
DataViz
55 Corporate Drive
Trumbull, CT 06611
(203) 268-0030
\$199; upgrade, \$50

when friends and coworkers see you brandishing a soldering iron near a \$4,000 computer. 

Although contributing editor Andy Ihnatko uses a CP/M laptop for his portable-computing needs, he wishes to stress that he wouldn't turn down a free PowerBook if Apple were to offer him one.

Is so. Is not. Is so.



New Aldus SuperPaint 3.0.



(Suggested retail price \$199.)

Let's put this argument to rest. It's both. SuperPaint® is the all-in-one program that makes it easy to do it all—combining paint, draw, and image enhancement—saving you time and money.

As you can see, its range of capabilities makes it perfect for either business users or graphic designers. And now with the added color capabilities, EPS import and export, textures, and gradients, it gives you even more creative options (by the way, it still works great in black and white).

Of course, the best way to settle any argument over SuperPaint is to try it.

See your Aldus dealer or call
206-628-2320 for more information.



The Creative Edge
in Business.

Now Shipping

DARE TO COMPARE.

RealTech Laser	QMS 810 Turbo w/HD	Apple NTX w/HD	QMS 410	TI Micro-Laser 35	Apple Pers'l LaserWriter
Street prices:					
\$1995	\$3995	\$4295	\$1750	\$1749	\$1995

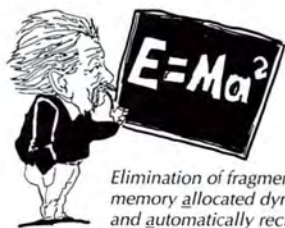
On average, the RealTech Laser performed 4 to 5 times faster than other PostScript® laser writers in its price range.



Visibly faster. The RealTech laser printers' high performance Weitek RISC processor prints complex documents 4 to 5 times faster than other non-RISC laser writers in their price range. ATM font rendering technology builds raw type characters 4 to 5 times faster. The RealTech uses a new version of the Sharp printer engine that prints 9 pages per minute.

Based on Adobe PostScript® Level 2...

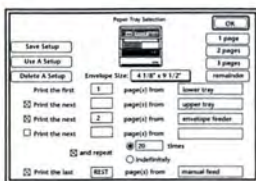
the next generation of Adobe's page description language, which has become the industry standard for defining pages of integrated text and graphics. It contains a number of performance, function and print quality enhancements that save printing time and improve quality. PostScript® Level 2 is compatible with all current application software that supports the PostScript® language. In addition, PostScript® Level 2 offers new capabilities, including forms handling, graphic patterns support, and new half-tone algorithms.



Elimination of fragmentation = memory allocated dynamically and automatically reclaimed

Genius-level memory.

One pool of memory is available for all resource needs. Memory is dynamically allocated and automatically reclaimed; no arbitrary memory restrictions exist. Disk space management is improved to eliminate fragmentation and improve transfer of information from the hard disk to RAM.



You can specify up to 4 paper changes from the menu — without ever leaving your chair!

2 paper trays included.

An ideal choice for multi-user printing environments. Includes two 250-sheet cassette feeders as a standard feature. Optional envelope feeder available for RealTech only.

500% FASTER than non-RISC printers

- RISC processor
- 2 paper trays
- 9 pages/minute
- SCSI port

\$1995
RealTech Laser

HOW REALTECH STACKS UP

PERSONAL LASER PRINTERS

	RealTech Laser	Apple LaserWriter III	Qume CrystalPrint Publisher II	Texas Instru. PS35	GCC BLP IIs
Price	\$1995	\$3999	\$2995	\$1995	\$2499
Pros	Weitek RISC processor	Motorola 68020	Weitek RISC processor	Motorola 68000	Motorola 68000
	9 ppm 8.5x11	8 ppm 8.5x11	6 ppm 8.5x11	9 ppm 8.5x11	8 ppm 8.5x11
	2nd paper tray	—	—	Optional 2nd paper tray	Optional 2nd tray
	300 dpi	300 dpi	300 dpi	300 dpi	300 dpi
	SCSI port	SCSI port	—	—	SCSI port
	2 mb RAM (+10*)	2 mb (+32*)	3 mb (+6*)	1.5 mb (+4.5*)	2 mb (+2*)
	PostScript Level 2	PS Level 2	—	PS Level 1	PS Level 1
Cons	Only available through	Very expensive	Expensive	Slow for graphics	Pricey
	HARDWARE THAT FITS	No 2nd paper tray	No 2nd paper tray	No SCSI port	—
	1-800-972-3018	—	No SCSI port;	Limited to 6 mb RAM	—
	Optional env. feeder \$269	—	PS clone	Optional paper tray \$199	Optional 2nd paper tray
	—	—	—	Optional env. feeder \$269	—

HARDWARE THAT FITS

HOURS
8 am-7 pm CST
610 South Frazier
Conroe, TX 77301

(Please.)

**RealTech laser printers
come out on top in
performance, features,
AND price, every time.**

TWICE THE PRINTER!

400 dpi/11x17 printer

- **High-speed printing
(15 ppm, letter size)**
- **8 ppm (tabloid size)**
- **2 paper trays included!**
- **SCSI port**



See our other ads
on pages 208-209
and pages 222-227.

\$4495

**RealTech
Laser 400**

The ideal networking printers.

The RealTech Laser's (and Laser 400's) three interface ports (Appletalk® RS-422, IBM PC parallel, and RS-232-C) can be used simultaneously. They can be assigned either PostScript® or LaserJet II emulation, making the RealTech an ideal network printer. It switches automatically between interfaces and emulations, and spools files on a real-time basis. A Hewlett Packard LaserJet Series II emulation allows use with non-PostScript applications software.

SCSI port. The standard configuration includes a SCSI port and 2 Mb of RAM upgradable to 10 Mb (RealTech Laser) or 4 Mb of RAM upgradable to 16 (RealTech Laser 400).

Money-back guarantee.

RealTech laser printers are backed by a one-year warranty. If you're not satisfied, we'll refund your purchase price, minus consumables.

Prices are subject to change without notice.

Before returning merchandise, we must ask that you call our Customer Service Dept. to receive a returned merchandise authorization number (RMA). This number must be included with any printer you return. No C.O.D. returns, please.
NOTE: Our ads are created entirely on Macintosh systems, from concept to film.

AGAINST THE COMPETITION

11x17 PRINTERS/HIGH-SPEED PRINTERS

	RealTech Laser	QMS 2210	Hewlett-Packard IIIsi
Price	\$4495	\$9995	\$6995
Pros	Weitek RISC processor	Motorola 68020	RISC-based formatter
	8 ppm 11x17	11 ppm 11x17	
	15 ppm 8.5x11	22 ppm 8.5x11	17 ppm 8.5 x 11*
	2 paper trays	Optional 2nd paper tray*	2 paper trays
	300 or 400 dpi	300 dpi	300 dpi
	SCSI port	SCSI port	
	4 mb RAM upgradable to 16	4 mb RAM	5 mb RAM upgradable to 17 mb
	PostScript Level 2	PS Level 1	PS Level 1
Cons	Limited supply	Very expensive	Expensive
	until 4/92	Limited to 300 dpi	Limited to 300 dpi
	1-800-972-3018	Poor paper handling	No 11x17 output; no SCSI port
		Slow for complex graphics; 4 mb RAM maximum * Optional paper tray \$115	* Optional double-sided printing costs \$695; not practical for most applications

1-800-972-3018

CIRCLE 197 ON READER SERVICE CARD.

FAX:
1-409-539-4141
CALL: 1-409-760-2400



Why Your Next IBM Computer Should Be A Macintosh.



SoftPC makes your Mac an IBM compatible. With SoftPC, the new Macintosh computers are more than just powerful and portable. They are also the most compatible computers available. Now

they can run a whole world of MS-DOS software. Because SoftPC® from Insignia Solutions lets you run any MS-DOS program on a Macintosh. Even over a Novell PC network.

Insignia Solutions
Bridging Worlds Of Software™

And SoftPC works on any Mac, from the Plus to the new Powerbooks and Quadras.

It's simple. Just load SoftPC and an IBM window appears on the screen. There's no hardware installation required. It's like having two computers in one.

If you don't believe it can be that simple, call us at (800)

848-7677. We'll answer all of your questions, and show you how your next IBM computer could be Macintosh.

INSIGNIA SOLUTIONS INC., 526 CLYDE AVENUE, MOUNTAIN VIEW, CA 94043 FAX: (415) 964-5434 CALL: (415) 694-7600

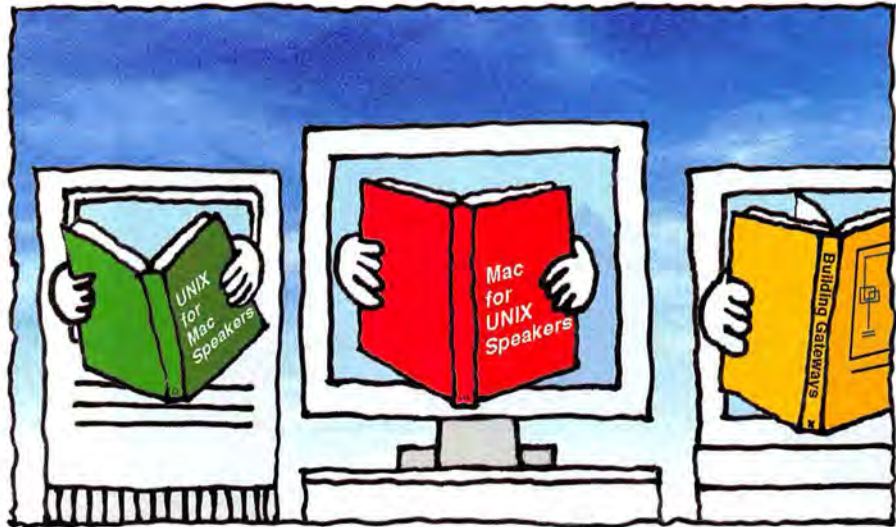
SoftPC is completely compatible with Apple's System 7 software. SoftPC is a registered trademark of Insignia Solutions Inc. All other product names are trademarks or registered trademarks of their respective holders.

CIRCLE 152 ON READER SERVICE CARD.

Parlez-Vous UNIX?

If you want your Mac to talk to a UNIX workstation, you'll either have to hire a translator or teach one of them the other's language.

By Kurt VanderSluis



If you've ever exchanged files (or tried to) between a Macintosh and a UNIX machine such as a Sun SPARCstation or one of Silicon Graphics' IRIS Indigo workstations, you know that the two computer systems are radically different. Besides having obvious disparities in user interface and price, UNIX machines and Macs use different file systems and network protocols.

These differences present a networking problem that's similar to the situation of a Frenchman and an American who need to communicate with each other. They have three choices: The Frenchman can learn English, the American can learn French, or they can hire an interpreter. Each choice solves the problem and has its own merits. Perhaps the two will use an interpreter at first, but if they need to exchange ideas regularly, they will probably adopt one of the other two choices. If they usually see each other in New York, the Frenchman may learn English. If most of their conversations are in Paris, the American will probably take French lessons.

Three Choices

You also have three choices for establishing communications between a Mac and a UNIX machine: You can make the UNIX computer speak like a Mac; you can make the Mac talk like the UNIX machine; or you can install a gateway, or "interpreter," between the two computers. Whichever option you choose, you'll have to make an additional investment in software or hardware. The purchase that's best for your network depends on criteria that

are similar to those of our human example. If you need a Mac-to-UNIX hookup only once in a while, use a gateway as a translator. If your users work on Macs and use a UNIX workstation simply for file storage, make the UNIX machine learn the Mac's language. If your network has mainly UNIX users who work on Macs occasionally, your best bet is to make the Mac speak like a UNIX machine. There are more variables, such as price and manageability, to consider, but these are the basic criteria for making the choice.

Now that we've outlined the possibilities, let's peer inside the technology and see how the options work.

Although a Mac and a UNIX workstation are quite different, they do have one similarity on the networking front: Neither one uses its native file system to communicate over a network. Instead, each uses a network-oriented file system to exchange files with other computers and manage remote volumes and files.

The Mac, for example, uses HFS (Hierarchical File System) to manage the files on volumes to which it is directly attached, such as hard disks, floppy disks, and SyQuest cartridges. But it uses AFP (AppleTalk Filing Protocol) as a filing system when it exchanges data with other computers, even other Macintoshes. The AFP language includes the nouns and adjectives necessary to refer to the attributes and contents of files, volumes, and directories, and it additionally has the verbs that are necessary to access and manipulate files. The AFP language is referred to as a file *metalanguage*, because it refers to file-system

components and commands in a generic language that isn't specific to a particular type of computer.

To continue our human-language analogy, let's suppose that someone developed a metalanguage for humans. The

Frenchman could translate his thoughts into this metalanguage, and the American could translate from the metalanguage into English. Using this system, all the people on the planet could communicate if they knew only two languages — their

native language and the metalanguage. This might sound like quite a boon to humankind, but the metalanguage would probably not convey information with the richness and nuances of a natural human language. This can also be a problem with file-system metalanguages, but we'll save that discussion for another day.

Frenchman Learns English

Because all Macs can use AFP and because Apple publishes the specifications for (and licenses) the AFP metalanguage, programmers can create software that allows other types of computers to perform the translation between AFP and their native file systems. Pacer Software's PacerShare and Information Presentation Technologies' uShare are examples of applications that enable some UNIX computers to function as AFP file servers while retaining their native network capabilities.

To a Mac user, a UNIX workstation running PacerShare or uShare looks just like an AppleShare server. It appears in the Chooser when you select the AppleShare icon. If you mount it, it appears as a hard-disk icon on the Mac's desktop. When you double-click on the disk icon, it opens a normal Mac window with icons for the UNIX machine's files and folders. All the differences between the Mac and the UNIX system are masked through the use of AFP.

In AFP terminology, the *server* is the computer that makes portions of its file system available for access by *client* computers. The portions of the server's file system that are made available are called *volumes*, and they can be mounted by the clients. AFP is an example of an asymmetrical protocol, in which the client is the partner that drives the relationship. The server doesn't initiate actions but merely responds to the client's requests. System 6 offered built-in AFP client capabilities, which enabled any Mac to be a client of an AFP server. System 7 adds file sharing, which allows Macs to be AFP servers as well.

In their native state, UNIX computers use a file metalanguage called NFS (Network File System). NFS, developed by Sun Microsystems, is a standard part of most UNIX systems. On a UNIX machine with NFS, an *NFS daemon* (background process) provides the translation between the machine's native file system and NFS. Information in the NFS metalanguage is transported to other NFS devices via

We put a lot in so you can get a lot out.

Microcom Value Pak™
(MVP) gives you
all these great utilities
at one great price!

**Microcom 911
Utilities™**
Disk and File Recovery

Virex®
Virus Prevention,
Detection & Treatment



Complete Undelete™
Recovery of Files
Thrown in the Trash

**Microcom Citadel
with Shredder™**
Disk and File Security

Carbon Copy™
for the Mac
Remote Control and
File Transfer

Microcom Value Pak (MVP)

Great Value! That's what everyone is saying about the Microcom Value Pak (MVP). You get Microcom's complete family of essential utilities for the Macintosh at one great price. MVP includes Virex, Microcom 911 Utilities, Complete Undelete, Citadel with Shredder and Carbon Copy for the Mac in one Package. See your favorite retailer for MVP today and you too will say GREAT VALUE!



© 1992 Microcom Systems Inc. Microcom and Virex are registered trademarks and Microcom 911 Utilities, Complete Undelete, Citadel with Shredder and Carbon Copy are trademarks of Microcom, Inc.

P.O. Box 51489
Durham, NC 27717
(919) 490-1277 ext. 310
FAX: (919) 490-6672
BBS: (919) 419-1602 (8,1,N)



CIRCLE 76 ON READER SERVICE CARD.

AMERICA ONLINE: It's So Good, It's FREE.

AN EXCITING NEW WORLD OF COMPUTING IS JUST TWO SNIPS AWAY.

Clip and return this coupon, and we'll send you—absolutely free—everything you need to start using America's most exciting online service: America Online. We're so sure you'll love America Online, we'll give you the software you need to get started, a free trial membership and free connect time so that you can explore this fascinating new world of information, Macintosh® computing support, entertainment and personal enrichment.

NO OTHER ONLINE SERVICE IS EASIER TO USE.

The familiar Macintosh point-and-click environment lets you navigate through America Online's many services quickly and efficiently. You'll be an expert in no time.

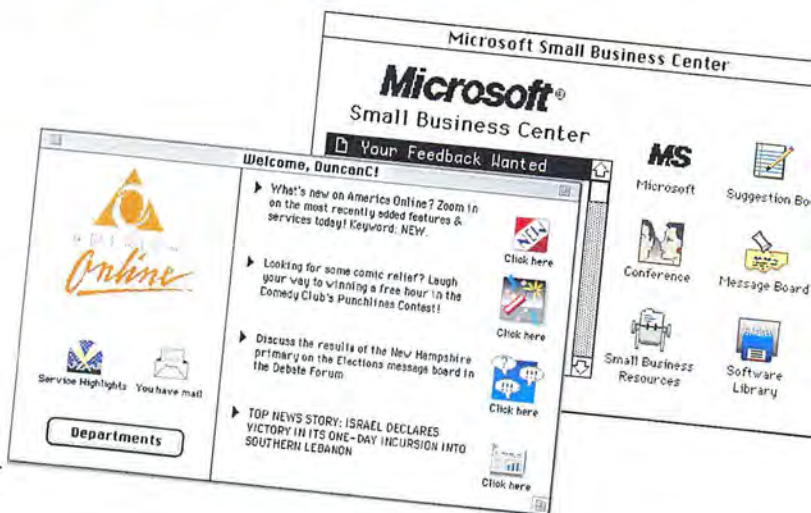
Get fast answers from hardware and software developers, reviewers, and computing experts. Scan for objective reviews on thousands of computing products. Browse software libraries filled with thousands of Mac® programs you can choose and use offline. Novice or pro, America Online will enhance your computing experience.

You'll profit from America Online in other ways, too. Send and receive electronic mail with ease. Manage your investments. Get nightly homework help for the kids. Get the latest news and weather. Join special interest groups and clubs. Save time and money shopping. Find and book the lowest airfares. Entertain yourself with games, quizzes, movie and book reviews, horoscopes, soap opera news, and much more.

DON'T DELAY—

ORDER YOUR FREE SOFTWARE NOW!

Find those scissors, clip the coupon, and get ready to enter an exciting new world of computing.



HURRY! RESPOND BY 6/30/92!

FREE TRIAL! FREE SOFTWARE!

☐ YES! Send me the free software and trial membership. I understand there's no risk—if I'm not completely satisfied, I may cancel without further obligation.



NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

()
HOME PHONE _____

You must have ☐ a Mac Plus or higher;
and ☐ a modem to use America Online.



How Many of These America Online Services Could You Use—Right Now?

- ☐ Stock Quotes and Portfolio Management
- ☐ 25,000 Software Files and Programs
- ☐ Fast, Easy Downloading
- ☐ Searchable Online Encyclopedia
- ☐ Powerful Electronic, Fax, and U.S. Mail Capabilities
- ☐ Microsoft® Small Business Center
- ☐ Support from more than 75 Leading Macintosh Software and Hardware Developers



- ☐ Access to Computer Industry Experts
- ☐ Special Interest Groups and Clubs
- ☐ Graphic Windowing Interface
- ☐ Nightly Event Programming
- ☐ Homework Help and Tutoring Sessions

Mail this coupon in today for your **FREE** trial of America Online!

NO POSTAGE
NECESSARY IF
MAILED IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 8567 VIENNA, VA

POSTAGE WILL BE PAID BY ADDRESSEE

AMERICA
Online®

8619 Westwood Center Drive
Vienna, VA 22182-9806



HURRY! RESPOND BY 6/30/92!

FREE TRIAL! FREE SOFTWARE!

- ☐ YES! Send me the free software and trial membership. I understand there's no risk—if I'm not completely satisfied, I may cancel without further obligation.



NAME _____
ADDRESS _____
CITY _____
STATE _____ ZIP _____
() _____
HOME PHONE _____

You must have ☐ a Mac Plus or higher; and ☐ a modem to use America Online.

Clip and mail to:
America Online
8619 Westwood Center Drive
Vienna, VA 22182

America Online is a registered service mark of America Online, Inc.
Macintosh and Mac are registered trademarks of Apple Computer Inc.
Microsoft is a registered trademark of Microsoft Corporation.

TCP/IP protocols, much as data in the AFP metalanguage is transmitted via AppleTalk protocols.

American Learns French

Just as there are programs such as PacerShare and uShare that add AppleTalk capabilities to a UNIX machine, there are applications that create NFS and TCP/IP processes on Macs. An example of such a program is NFS/Share, from InterCon Systems. NFS/Share provides the translation between HFS and NFS. It comes with Apple's MacTCP extension, which adds TCP/IP protocols to supplement the Mac's AppleTalk networking capabilities.

With NFS/Share, you use a unique icon in the Chooser to locate the servers, but virtually everything else is the same as usual. NFS/Share also makes the UNIX device appear as a server volume on the desktop, with folder and file icons. (Note that you can instead use the UNIX utilities telnet and ftp — which come with many UNIX computers and TCP/IP routers — to exchange files between a Mac and a UNIX machine, but they use the UNIX syntax and are therefore difficult for most Mac users to master.)

Hiring an Interpreter

The third choice for Mac-to-UNIX communications is to use an interpreter. Cayman Systems' GatorBox with GatorShare software is one such device. In this setup, the Mac speaks AFP to the GatorBox, which speaks NFS to the UNIX machine. The situation is reversed in the UNIX-to-Mac direction. The GatorBox is called a *gateway*, because it does the translation between the AFP and NFS metalanguages.

To a Mac, the NFS volumes accessible through the GatorBox look like one or more AppleShare servers, each of which can have multiple volumes available for mounting. To a UNIX user, the GatorBox appears to be just another NFS client uploading or downloading files. The Mac and UNIX computers never communicate directly with each other; they always use the GatorBox as an intermediary.

Each of the three Mac-to-UNIX options can be tricky to set up, because you must be familiar with AppleTalk, TCP/IP, and NFS to do so. Next time, I'll troubleshoot a typical situation in which a client had trouble configuring an NFS server to work correctly with a GatorBox. ☐

Kurt VanderSluis is president of The Network Group, a training and consulting firm in Seattle.

MacTable®



"The only workcenter I'd ever consider for my Mac."

Larry Pina
The Macintosh Bible



MacUser, June '90

"MacTable is the best designed and built and the best value. You win on all counts."

Steven Bobker
MacUser

Designed for space, comfort and productivity

ScanCo

P.O. Box 3217
Redmond WA 98073-3217

Call for Free Catalogue and
Computer Ergonomic Checklist

☎ 800-722-6263
or 206-481-5434 in WA state

MacTable design is patent pending. MacTable is a registered trademark of Scandinavian Computer Furniture, Inc.

Tied to Old Systems?



Rent from Genstar and Make Obsolescence Obsolete

Save money and keep up-to-date with the latest PCs and peripherals from Apple, Compaq, IBM, & Toshiba. Call to end obsolescence.

U.S. 1-800-422-3300
Canada 1-800-387-6646

**GENSTAR
RENTALS** 
What you need when you need it

PCs, Workstations & Electronic Test Equipment for Business

CIRCLE 16 ON READER SERVICE CARD.

[illegible]

Everyone who uses a Macintosh® ought to back up regularly. But most people don't back up at all.

In fact, if the people in your company are like those at most other companies, about the only way you're going to get regular backups out of them is to do it without them.

Guess what?

Now you can.

Now you can set up fully automatic, unattended backups for every Mac in the house.

Not to mention every DOS® and Windows®-based PC and Novell® network server.

What's more, you can easily customize the nature and timing of each one to

The Macintosh version of the world's most popular backup software is also the Mac world's most flexible backup software.



If automated, unattended backups aren't your style, you can still enjoy unprecedented convenience with our Express Menu, which lets you perform a full backup with a couple of clicks of your mouse.

Along with being System 7 savvy—which means you get to enjoy Balloon Help and other wonderful things—Version 2.6 lets you back up to just about anything you can think of, from floppies and hard disks to direct access and streaming tape drives and any HFS device.

It also lets you back up in the background while you're using an application or two in the foreground.

It even formats floppies on the fly, so you don't have to bother.

And it comes complete with our unique Macro Editor.

What, you ask, makes our Macro Editor unique?

It uses plain English commands. Which means you can actually use it.

Using the Mac version of Fastback Plus is a lot like using the DOS version, the Windows version and the Network version—same look, same functionality.

Same backups, even.

That's right. You can actually restore a Mac file directly onto a PC, and vice versa.

Nobody else can do that.

But then, nobody else can back up 1MB per minute on a Mac.

No other DOS, Windows or Network backup program can run fast enough to see our tail lights.

And no other backup software is backed up by our

In addition to floppies, hard disks and other HFS devices, Fastback Plus for the Macintosh lets you back up to direct access and streaming tape drives.



vaunted 24-hour toll-free technical support. And our one-year money-back guarantee.

There's more. So pick up the phone. Dial 1-800-666-2904.

And tell everyone to stand back.



suit *your* requirements.

And transform a simple, effective company-wide backup policy from fantasy into fact.

All you need is Fastback Plus.



FIFTH GENERATION SYSTEMS, INC

CIRCLE 103 ON READER SERVICE CARD.

Full-bleed tabloid



Incomparable Comps.

Outstanding Overheads.



Overhead transparency

Standard tabloid



Fantastic Finish.

Perfect printing.

Your work deserves it and ColorMaster® Plus was specifically designed to deliver it.

ColorMaster Plus has the right resolution: 300 dpi

You get PostScript® language compatibility, and instant access to a wide range of software.

For accurate color, it's PANTONE® approved.

Size selection? Letter or tabloid with full bleed—giving you the largest live image of any cut-sheet desktop printer.

Plenty of ports, too. SCSI, Appletalk, RS-232 and Centronics parallel so you

New ColorMaster Plus



can mix and match different computers on one ColorMaster Plus printer.

Plus, there's something you just can't

get anywhere else: CalComp product quality and long term commitment to service, support and supplies. Our **1-year on-site warranty** is only one example.

Your incredibly intelligent next step? Call **1-800-932-1212** for more information. In Canada, 416-635-9010.

We draw on your imagination.™

CalComp

A Lockheed Company



Phoenix Page Color is a trademark of Phoenix Technologies, Ltd.

© 1992 CalComp Inc. P.O. Box 3250, Anaheim, CA 92803. ColorMaster Plus and We draw on your imagination are trademarks of CalComp. PostScript is a registered trademark of Adobe Systems, Inc. AppleTalk is a registered trademark of Apple Computer Inc. Pantone is a registered trademark of Pantone Inc.

USERS CIRCLE 171 ON READER SERVICE CARD.

DEALERS CIRCLE 172 ON READER SERVICE CARD.



When *MacUser* ran its first big feature on multimedia in 1989, we included a photo of a trout in a pitcher of milk. When puzzled readers asked why, we claimed to be referring to a quote from Thoreau. Now it can be told: We were actually predicting that almost four years later, The Voyager Company ([310] 451-1383) would release Schubert's *Trout Quintet* (\$59.95) as its latest CD Companion CD-ROM Guide. And the milk? That must have been the About Cows CD-ROM, from Wayzata.

By James Bradbury

PowerBook dieting: When selecting applications for your PowerBook, think small. Here are some suggested lean-and-mean substitutions: Instead of Word 5.0 or WordPerfect, try the new version of WriteNow (\$249), from T/Maker ([415] 962-0195). For a flat-file alternative to Claris' FileMaker, try the \$395 Panorama, from ProVue ([714] 892-8199). Panorama and WriteNow each fit nicely on a RAM disk, keep data in RAM, and save files efficiently. **Consider it a bonus** that WriteNow is faster and Panorama is more powerful (*and* faster) than the leaders in their respective markets.



Hearing aids: This isn't a reason to buy a Mac, but it's a nice unexpected benefit: the ability to keep instruments in tune. For people of less-than-Mozartean abilities, that previously meant buying an electronic tuner. Now you can do it with a Mac (especially convenient for PowerBook owners) and a \$69.95 software package called Master Tuner, from Andromeda Computer Systems ([403] 247-5300). Although Master Tuner is great for that **banjo in your closet**, you can also use it to



experiment with various tempered tunings on pianos and other keyboard instruments. ➤ When composer/conductor Carl Davis had the job of teaching **Paul McCartney** how to write classical music, he suggested that the former Beatle listen to Benjamin Britten's *The Young Person's Guide to the Orchestra*. Mindful of his age and station, perhaps, Paul declined. Carl might want to try again, though, with the AudioNotes edition of the piece (\$79.98), from Warner New Media ([818] 955-9999). No guarantee about whether users will be able to write their own oratorios, but it'll be educational.

Living trusts are increasingly popular, and for good reason — they minimize the red tape and maximize the estate for beneficiaries. Now you can draft your own trust documents with LivingTrustBuilder (\$139), from JIAN Tools for Sales ([415] 941-9191), or Living Trust (\$55.95), from Nolo Press ([510] 549-1976). Doing it yourself won't be easier than hiring a lawyer, but it'll be **a lot less expensive**. ➤ From heirs to airfares: If Macs can (partially) replace lawyers, then why not travel agents? The OAG (Official Airline Guide) has long been available as an on-line service for you to (theoretically) find and book your own flights. What really makes this practical is a \$129 graphical user interface for the OAG called Take Flight!, from Lateral Thoughts ([617] 491-0274). It asks you your requirements and then, after calling up the OAG either directly or via CompuServe, shows you a graphical representation of available flights and connections. Once you've decided what you want, the program can book your flights for you and print your itinerary. Best of all, you have to tell it your **frequent-flier number** only once. ☞



Fontek™



now! A new release
of Fontek
faces...
only from
Letraset

Superior Quality Digital
Display Type Fonts In
TrueType™ and PostScript®
Type 1 Formats On One Disk.

- Unique fonts in classical and innovative styles from Letraset's world renowned display type library—typefaces that are unavailable from any other type foundry!

- Superior typographic quality—faithful to the library's original type designs in every detail, on screen and in print.

- Each FONTEK Digital Display disk features a complete character set, alternatives, accents and contains both TrueType and PostScript Type 1 formats.

\$39.95
per typeface

For a FREE FONTEK Specification Brochure, a demo disk or for more information on FONTEK just call 1-800-343-TYPE, or write Letraset USA, 40 Eisenhower Drive, Paramus, NJ 07653.

Fontek is available at your local Art Material Dealers.

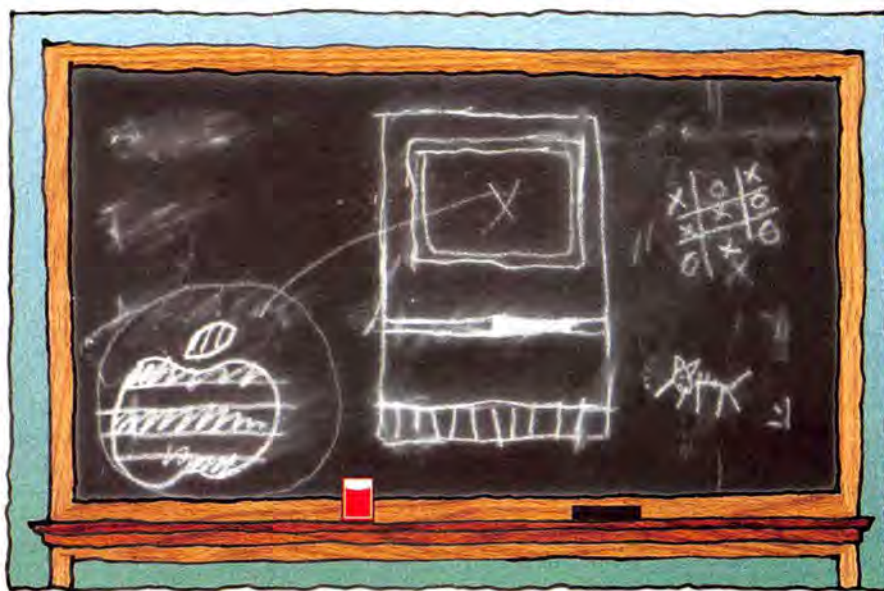
Ad design and digital illustration by Marcolina Design Inc., Philadelphia, PA

Letraset

The Best for the Brightest

Are your kids using the Mac to play games, get an education, or both? Here's a rundown on software that will get kids (and parents) excited about learning — plus two great (free) PowerBook utilities.

By Steven Bobker



Far too many educators find computers useful only for rote drills and for keeping students occupied. The creative advantages inherent in good educational software are often totally ignored. It's a shame — nearly a crime — to use a Mac merely as a robotic proctor, because there's more to educational software than Carmen Sandiego.

I recently had the pleasure of moderating a Macworld Expo panel called The Macintosh Student Forum. The panel consisted of three high school sophomores and two college students. The high school students — Ben Herlth, Kerrie Keller, and Daniel Pieracci, from San Jose's Lincoln High School — presented excellent short subjects that they'd created in MacroMind Director and transferred to videotape. The students had not only learned about the subject matter but had also managed to master Director (no mean trick) and video production. Their knowledge had been enhanced in a wide range of areas.

The college students — Audrey Huang and Mark Tozer-Vilchez — attend the University of California at Berkeley. They built excellent, useful health and campus-computing resource stacks in HyperCard and SuperCard for distribution to the student body. Their work shows that with help and encouragement from educators, Macs are a potent educational tool.

Teachers also can use tools such as HyperCard and SuperCard to build courseware. Online services and user groups have many stacks

that can be easily modified to suit the needs of any course of study. More-specialized tools, such as Director and other presentation packages, take more effort to master and may not be worthwhile for all teachers. HyperCard, on the other hand, is universal (not to mention affordable — a copy still comes with every Mac) and should be included in all educational programs.

Watch out for this year's trend in Mac educational software: QuickTime/multimedia. QuickTime promises great programs and great possibilities. Hardware is presently a problem, because most schools and students have slow, older Mac models. QuickTime either can't run on them at all (it can't run on Classics, for instance), or it runs so slowly that even the most avid students will turn away. That should change by this time next year, so multimedia and QuickTime will become practical for many more schools. Less expensive and faster hardware is on the way, but until then, more-traditional tools can suffice if you add enough imagination.

Software for Learning

Finally, after many lean years, the educational-software market is booming. Companies such as Great Wave Software, MECC, and Davidson formerly eked out a living amid the spreadsheet and word-processor giants. Now the tide is turning, helped by blockbusters such as Brøderbund's The Playroom and its 1991 Eddy Award winner KidPix (\$49.95

No One Knows How To Work The System Like Don Crabb.



No one can give you a better introduction to System 7 than *MacWEEK* columnist Don Crabb. This book covers everything from memory management to working across networks, including customizing the System 7 environment, improving type quality (both on-screen and printed), and developing new system management strategies. Expertly written and illustrated, this guided tour of System 7 is an invaluable companion for both veterans and novices.

1-800-688-0448



© 1991 Ziff-Davis Press
5903 Christie Avenue
Emeryville, CA 94608

PERSONAL MACINTOSH PERSONAL BEST

and \$59.95, respectively; [415] 382-4400). KidPix enchants adults and children alike. There's no friendlier introduction to Macs for computerphobes.

Great Wave Software ([408] 438-1990) has two old favorites, Kid's Time and Kid's Math (\$44.95 each), which are getting a bit dated but still make excellent teaching aids. The newer Number Maze and Reading Maze (\$59.95 each) are also excellent programs.

Number Munchers and Super Munchers, from MECC ([800] 685-6322 or [612] 569-1500), are challenging math and fact games. They have enough variety to capture the imagination and provide an ongoing challenge. The simpler Word Munchers is better suited to a young audience than are Number Munchers and Super Munchers. They cost \$49.95 each.

MECC also has an intriguing historical game called Oregon Trail (Wagon Train 1848 is the multiuser cooperative network-based version). Students can use the programs to learn about the history of the settlers of the West; the cooperative version helps them gain an understanding of why teamwork was necessary for a successful westward journey. Oregon Trail lists for \$49.95, and Wagon Train 1848 costs \$379 for a five-user package; additional five-user packages are \$99 apiece.

Tom Snyder Productions ([800] 342-0236 or [617] 876-4433) has an interesting group of cooperative programs that cover a range of topics and are useful in networked classrooms. The Decisions, Decisions series has simulation modules for U.S. history, critical issues in the budget process, foreign policy, television, and the environment. Prices range from \$119.95 for single-user non-networked copies to \$349.95 for five-user packages.

New Math Blaster Plus (\$59.95), from Davidson ([800] 556-6141 or [310] 793-0600), is good for teaching basic arithmetic skills, and Alge-Blaster Plus (\$59.95) and Math Blaster Plus (\$49.95) are good places to start learning algebra, equations, and logic. Speed Reader (\$49.95) can improve anyone's reading speed, and Word Attack Plus (\$59.95) is a good vocabulary builder that allows user additions in foreign languages as well as in English.

The Writing Center (\$89.95), from The Learning Company ([800] 852-2255 or [510] 792-2101), is an excellent introduction to word processing and desktop publishing. Despite its low price, The

Writing Center is a capable word processor and can be used well beyond the basic learning stage. The bundled clip art makes The Writing Center ideal for newsletters and school papers.

The state of geography education in this country is pretty dismal. Two programs that can help are MacGlobe (\$79.95), from PC Globe ([602] 730-9000), and World Atlas (\$59.95), from Software Toolworks ([415] 883-3000). The two programs are fairly similar. They involve exploring the countries of the world and can present many facts about any of them. MacGlobe has better maps and is my choice in this area. On a more local scale, Swamp Gas (\$49.95), a 1991 Eddy Award nominee, from Inline Design ([203] 435-4995), mixes U.S. geography with a challenging game.

Language-teaching software has come into its own in the past year. These programs — which use HyperCard, audiotape, and in some cases, CD-ROMs — are the next-best thing to a trip overseas. HyperGlot ([615] 558-8270) produces an array of foreign-language teaching tools. Its programs include Word Torture, Tense Tutor, and Pronunciation Tutor and are available in French, German, Italian, Russian, Spanish, Chinese, and Japanese versions. The programs range from beginner to advanced and cost \$49.95 to \$149.95. Some are also available on CD-ROM. The VocabuLearn/ce series, from Penton ([619] 431-0060), offers the same languages as HyperGlot does. These programs use a combination of audiotapes and HyperCard stacks. Their prices range from \$59.95 to \$99. I found the HyperGlot products to be slightly more imaginative, but the differences are small.

The range of educational tools is enormous, but it's important to remember that any program can be educational: It depends on how it's used. Excel can teach accounting, and WriteNow can be used to teach English, for example. Teachers can mix dedicated and general-purpose packages to make learning a pleasure.

Road Tips

If you're like me, you probably turn on your PowerBook's Caps Lock accidentally several times a day. The lack of feedback that Caps Lock is on — other than a small icon far up in the right corner — is one of the PowerBook's worst features. This one gets everyone sooner or later. Ed Ludwig, of Abbott Systems (publisher of Can Opener, Cheshire, and

Calc+), noted users' dismay and has created a wonderful small freeware extension called Caps Lock. Once you install it, it beeps and flashes a brief warning at the bottom center of the screen when you turn Caps Lock on or off. This great contribution to better PowerBooking is in Library 3 of the MacUser Forum on ZiffNet/Mac and is called CAPSLO.CPT.

More PowerBook cases have come my way recently, including a truly great bag from West Ridge Designs, a set of three from ComputerAid, and easy-to-find Targus bags in leather and heavy nylon.

The bag from West Ridge Designs ([800] 548-0053 or [503] 248-0053) is made of heavy nylon and is well padded on all sides. Priced at \$80, it holds any PowerBook, the AC adapter, and some spare batteries and has ample space for books, papers, and other accessories. It's the best-balanced bag I've seen and makes toting ten or so pounds of computers and books a relatively pleasant chore.

The MacSac bags, from ComputerAid ([800] 343-3388 or [508] 674-0860), range from a plain unpadded nylon slipcase without a handle or strap (\$10) to a PowerBook-sized small padded case with a handle (\$32) to a full briefcase-sized padded unit (\$64.50).

The bags from Targus ([714] 523-5429) come in a variety of sizes and cost \$70 to \$180. Although they're touted as universal cases for any notebook computer, the models I saw fit the PowerBooks very well. One caveat: The nice FolioPac leather bag is unpadded. The leather and nylon LapPac, Premier, and Universal series are well padded.

Pick of the Month

Programs that change the way most people compute don't come along every month or even every year. Frontier (\$179), from UserLand ([415] 325-5700), has the potential to be one of those rare great programs.

At first glance, Frontier is yet another programming language, but it's more than that. It's a key and a glimpse. The key is that it lets users open the door to cooperative computing, in which applications, rather than contending with each other for precious CPU time, work together to make the sum of their usefulness greater than that of their parts.

The glimpse is just that: Version 1.0 is a tease. To get the most out of it, you need programming ability and patience, because it can be slow. You also need to be

able to look past Frontier's file-naming conventions, which only a committed nerd could understand and love. Its language is somewhat like C, and although programming in Frontier isn't too difficult, it isn't for most of us either.

The saving grace in this version is that programmers can write what Frontier calls desktop scripts. These scripts allow Frontier users to simply use the power of the program. One example of a desktop script is called the PowerBook suite. This script is installed on a desktop Mac and on a PowerBook. When the two Macs are connected on a personal network and the suite is activated, it checks all the files in a designated folder on the PowerBook and on the desktop Mac. Then it moves files around so that both locations have the latest versions of all the files in either folder — it's slick and useful.

Don't be intimidated by Frontier's verbs and .roots. Take a look at Frontier. If you like what you see now, buy it. If not, call Dave Winer at UserLand and tell him to hurry up with version 2, the one for all of us.

Post-Easter Egg

Excel took on Lotus 1-2-3 Mac via Easter egg. Did you think that the Mac team at Lotus would let that pass? Certainly not! I've heard that Lotus 1-2-3 for the Mac contains two Easter eggs, but I've been able to find only one. Here it is.

Set your Mac's date to any full-moon date. (It's better to set it back rather than ahead, because if you have alarms set and you set the date ahead, the alarms will go off. Oops.) Now select the About 1-2-3 box from the Apple menu, and press the Command key while you click on the right-hand area where the registration information is recorded. Watch the scrolling list carefully. It consists of the names of the team that produced 1-2-3. Pay careful attention to the last line.

Here are some 1992 full-moon dates: 2/18, 3/18, 4/17, and 5/17. The absolute last chance to see this Easter egg is 7/30/96. After that date, it ceases to work.

I'm still looking for the other Easter egg in Lotus 1-2-3 as well as the one in Word 5.0. If you know where to find either one or any other interesting Easter eggs, please drop me a line. ☺

Steven Bobker, a former editor-in-chief of *MacUser*, currently keeps busy, amid other projects, acting as system operator (sysop) for *MacUser's* on-line service, ZiffNet/Mac.

QuickKor Quadra+ COMBO

This hot combo has the power you need to succeed!



QuickKor View
19" Color Trinitron Monitor

- 75 Hz Refresh Rate
- 72 DPI
- 1024x768 Display

BRAND NEW!!
These are not refurbished units!

Incorporating SONY'S patented Trinitron technology complete with cable & tilt swivel.

\$1888
Lease Only \$69/Mo.

Quadra 700

Maximum power 68040 gives the Quadra 700 the muscle to manage masses of data.

- 8 MB RAM
- 170 MB Quantum HD
- Raster Ops 8XL card gives you 256 colors at 8 bit
- 2 NuBus slots for expansion
- Up to 40% faster than an fx
- Extended keyboard w/software

\$6588
Lease Only \$250/Mo.

Ask About QuickKor Kare Extended Service

Unequaled savings like this just don't add up!!

BUY BOTH ONLY \$8000
Lease Only \$299/Mo.

QuickKor+ Quadra Combo

You get all 3: Value, Speed and Color!

WOW!
The bottom line is: You buy them both. You save big bucks!! Unequaled Savings of \$476!!

800 331-1322
24 hour QUICKFAX (503) 286-8710
Local: (503) 286-9350

Mac Friends

Personal and business leases available... Call Today!!

FEDERAL EXPRESS

CIRCLE 93 ON READER SERVICE CARD.

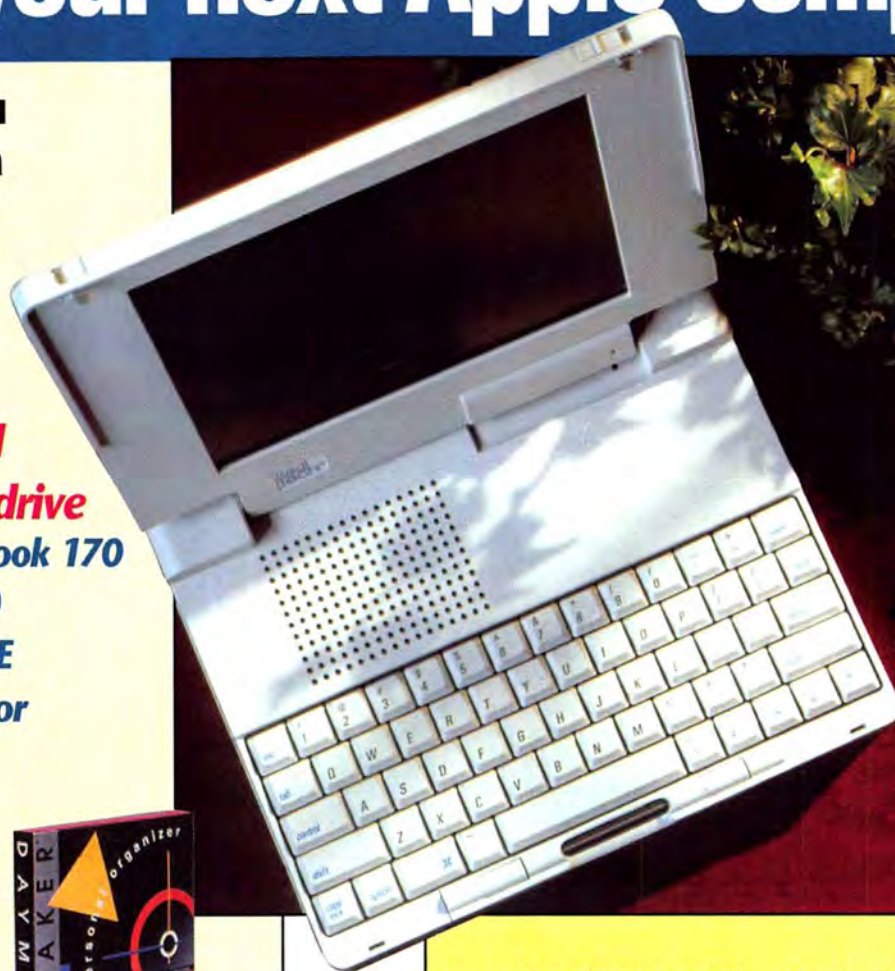
Why your next Apple computer

6 reasons you should own a



- **8 Mb of RAM**
- **80 Mb hard drive**
(Apple's PowerBook 170 only has 40 Mb)
- **25 MHz 68030E**
- **Math coprocessor**
- **6.25 lbs.**
- **8.5" x 11" x 2"**

FREE!
Includes
DayMaker
software...
a \$99 value!



The only real notebook for the future.

Portable computing anytime, any place.

Declare your independence from a deskbound computer...and enjoy the freedom that the RealTech TRAVLER gives you. Our customers like to work hard—everywhere. In planes, trains, and automobiles. At photo shoots and meetings. In a ski lodge, or at the beach. (Although, who'd want to?) Using the TRAVLER gives you an edge on your competition; you're more productive and efficient with your time.

Powerful enough to be your only computer!

Our portable notebook computer weighs only 6.25 lbs. Yet it has so many features that it's capable of being your only computer. With 25 MHz of computing speed and a math coprocessor, it's faster than a Mac IIci; its specifications are comparable to a Mac IIci. The TRAVLER includes a standard SCSI port. It only takes a minute to connect it to your network or a computer to transfer data, or to use as a hard drive.

Don't judge a book by its cover!

RealTech TRAVLER 880*

Apple PowerBook 170

Price	\$3495	\$4599
Pros	Motorola 68030E 25MHz 8 Mb RAM (upgradable to 14 Mb) 80 Mb hard drive Math coprocessor 1.44 Mb SuperDrive compatible SCSI port (connects to other computers via SCSI port for data transfer) Camcorder battery (3 hours) Backlit LCD display 640 x 480 resolution SCSI cable included** DayMaker software (\$99 value)	Motorola 68030 25MHz 4 Mb RAM (upgradable to 8 Mb) 40 Mb hard drive Math coprocessor 1.44 Mb SuperDrive SCSI port (needs special SCSI cable sold only by Apple) NiCad battery (3 hours) Backlit active matrix screen 640 x 400 resolution 2400 baud modem/9600 send fax
Cons		Expensive Limited to 8 Mb RAM Costly accessories

***TRAVLER 880 (8 Mb RAM, 80 Mb HD) — \$3495**
TRAVLER 1480 (14 Mb RAM, 80 Mb HD) — \$3995

HARDWARE THAT FITS

FAX: 1-409-539-4141
Call: 1-409-760-2400

HOURS
8 am-7 pm CST

610 South Frazier
 Conroe, TEXAS
 77301

should be a RealTech.

Only \$3495!



“My ad agency got really mad at me about this notebook computer.

Like me, they're very excited about the benefits — and price — of the RealTech TRAVLER. We'd spent a lot of time thinking about what you'd want in a notebook computer. And we invested a considerable amount of time and money figuring out how to improve what was already on the market.

To make a long story short, we achieved our goal. The RealTech TRAVLER is more powerful than the Apple PowerBook 170; it has more RAM, a bigger hard drive, and more standard features. All that, and it's priced over \$1000 lower.

So why is my ad agency mad? Because I wouldn't give up our prototype model to be photographed. (We only had one TRAVLER in hand when we began work on this ad.)

In less than a week, I became so attached to my TRAVLER that I wouldn't give it up, even for a day. I do a lot of traveling, and it quickly became indispensable to my productivity. I made the agency wait 'til TRAVLERS were rolling off the line, then sent the agency one to shoot for this ad.

Now I have another problem...I can't get the agency president to return it. After she used it for a day, she was hooked, too!”

Réal Provencher

President
Hardware That Fits

TAKE IT...OR LEAVE IT.

Packed with double the value of Apple's PowerBook 170...

This is a real computer that will work in the everyday real world, not just in somebody's lab. We put in enough memory and hard drive to meet your needs today and tomorrow. The RealTech TRAVLER 880's high-speed, high-capacity 80 Mb hard drive, 8 Mb of RAM and 1.44 Mb floppy drive make reading, loading, and transferring files fast and easy. It even uses a standard camcorder battery, which can recharge while the TRAVLER is in use.

8 Mb RAM...and an 80 Mb hard drive!

The TRAVLER 880 has 8 Mb of RAM, upgradable to 14 Mb (nearly double the RAM in the Apple PowerBook 170)...enough memory to run almost any Macintosh program. (The TRAVLER 1480 has a whopping 14 Mb of RAM!) And with its high-speed, high-capacity 80 Mb hard drive, there's plenty of storage.

Can be connected to any Macintosh desktop computer.

Unlike the Apple PowerBook 170, the RealTech TRAVLER's SCSI port and cable (included free) make it easy to connect to any Macintosh computer with a SCSI port. Upon start-up, the TRAVLER's hard drive and floppy will appear directly on your Macintosh desktop, just like any other hard drive or floppy. You no longer need to maintain two versions of each file (one for the desktop Macintosh and one for your notebook), since all of your files will permanently reside in the TRAVLER. When you're ready to leave the office, just shut down the desktop Macintosh, disconnect the TRAVLER's SCSI

**See our other ads,
pages 192-193
and 222-227
(CARRYING CASES
SOLD ON 227)**

cable, and you're on your way. No more disk swapping to maintain your files.

Takes the place of a Mac IIci. So you only need one computer, not two.

Now you only need one computer for office and travel, and only ONE set of datafiles!

The RealTech TRAVLER is so powerful it can double as your desktop computer. When you add an optional full-page display (\$879) or 21" dual-page display (\$1279), mouse, and keyboard, its specifications are comparable to a Mac IIci. So why would you buy one of those when you could own a RealTech TRAVLER you can take with you?

The RealTech TRAVLER is fully authorized by Apple Computer, Inc.

It's the best portable solution available. When has the decision to buy a computer ever been such an open and shut case?

All trademarks are the property of Apple Computer, Inc. and MBSI.

TRAVLER ACCESSORIES

Pocket Fax Modems

MASSfm 24/96 Modem	209
Solectek Pocket Fax Modem	209
ProModem 24/96 Remote Plus	215
Global Village Teleport Fax	179

Pocket Hard Drive

Hitch Hiker 80 (80 Mb Hard Drive)	669
---	-----

RealTech TRAVLER Battery & Charger

TRAVLER Battery	49
TRAVLER Battery Charger	89

1-800-972-3018

CIRCLE 198 ON READER SERVICE CARD.

30-DAY MONEY BACK GUARANTEE!

Before returning merchandise, we must ask that you call to receive a returned merchandise authorization number (RMA), which must be included with any product you return. No C.O.D. returns, please. Prices are subject to change without notice.

DESKTOP DIAGNOSTICS SNOOPER

LETS YOU FIND THE PROBLEM



TESTS • BENCHMARKS • LOOPBACK CONNECTORS • RAM TEST • SYSTEM TESTING • SCSI TESTS • I/O TESTING • AUDIO TESTS • ERROR LOG

DIAGNOSTIC SOFTWARE FOR MACINTOSH

The next time you see a 'sad Mac' on your screen or your Mac's performance isn't up to par, **DIAGNOSE FROM YOUR DESK** with **SNOOPER**, the revolutionary new standard for Mac diagnostic and testing tools.

SNOOPER performs a comprehensive suite of tests, **CHECKS ALL**

YOUR HARDWARE and identifies any problems. And the same **SNOOPER** software runs on all Macs.

SNOOPER is easy to use and saves time and money. If you already own Norton Utilities, complete your Mac utilities with the hardware diagnostic.



116 MARYLAND AVE.
GLENDALE, CA 91206
800-788-6292

MAXA and SNOOPER are trademarks of MAXA Corporation. Other product and company names are trademarks of their respective owners. © 1992 MAXA Corporation. All rights reserved.

CIRCLE 239 ON READER SERVICE CARD.

How to Buy

Secondhand Equipment



It may seem as though the Mac's been around forever, but it's only eight years old. With new models appearing almost every year, older Macs such as the Mac II and the Plus seem a little quaint next to their newer streamlined brethren. But before you shell out money for a new machine that you might use only for business emergencies or for personal use, consider secondhand Macs, because many still have plenty of life left in them. Of course, there are always hazards when buying used equipment, but if you follow these suggestions, you can minimize the risks and avoid buying a lemon.

By Victoria von Biel

✔ Secondhand Macs are available through several sources: classified ads, user groups, auctions, computer swaps, and companies that specialize in selling used Macs. You'll pay more if you buy through a company, but you should get some sort of guarantee — often money-back — in return for the higher price. When buying privately, a user group is a good bet, because of the technical support that's available.

✔ Be careful when buying bargains — the less expensive the Mac, the more likely it is that you'll have to spend money and time either fixing it or upgrading it. If you know what you're doing, a damaged Mac can be a great deal. If you don't, you'll probably end up with a useless box.

✔ A secondhand Mac's age is not as important as its condition: Appearance is a good indication of how the Mac's been treated.

⚙ Check out Mac Pluses for a good low-end bargain. It's possible to find Pluses with 4 megabytes of memory for around \$500. Before buying a Plus, though, you should ask whether it has its original power supply. If it does, there's a good chance that it will need a new one before long.

⚙ Another good deal is an SE *without* an internal hard drive. Add your own hard drive for a low-priced, reliable machine.

⚙ Are you looking for something more advanced than a Plus or an SE? By adding some simple upgrades (such as a PMMU chip and a high-density floppy drive) to a Macintosh II, you'll get reasonable performance for a very reasonable price. Apple also sells a relatively inexpensive logic-board upgrade for Mac IIs to IIx's.

⚙ To avoid some expensive repairs, examine the floppy-disk drive carefully when you're checking out a used Mac.

Make sure that it can initialize a new disk, that it can read some good disks you've brought from home, and that the Eject function works smoothly.

❓ If the Mac's performance is noticeably slow, you can check its speed with the System Index utility, included with Mac expert Larry Pina's *Macintosh II Repair and Upgrade Secrets* (Carmel, Indiana: Hayden Books, 1990). This utility includes a test and a chart that tell you how fast Macs — starting with the Plus — should be. A significant speed problem can be fixed only by upgrading the logic board.

❓ When buying a Mac with a 9-inch screen (an SE or a Plus, for example), take along a measuring tape so you can check the screen size. It should measure a little less than 7.25 x 4.75 inches. If the screen is smaller, the power supply may be in trouble or the Mac may not have been properly maintained.

❓ If you'll be connecting an external drive, modem, or printer to the Mac, make sure you test these connections before buying to make sure they work properly.

✔ It's not worth buying secondhand peripherals such as hard-disk drives or modems. New models are more reliable, have warranties, and are competitively priced. ⚙



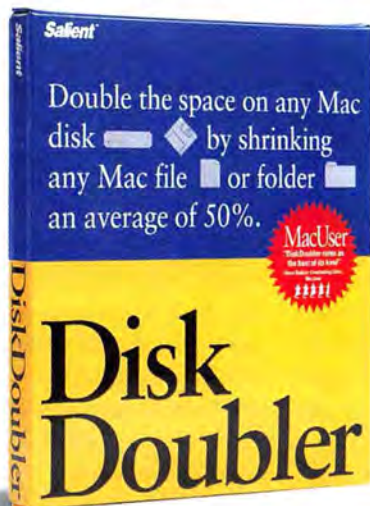
Visibly Superior.

Invisibly Superior.



For telecommunication, backups or floppies, use award winning DiskDoubl™.

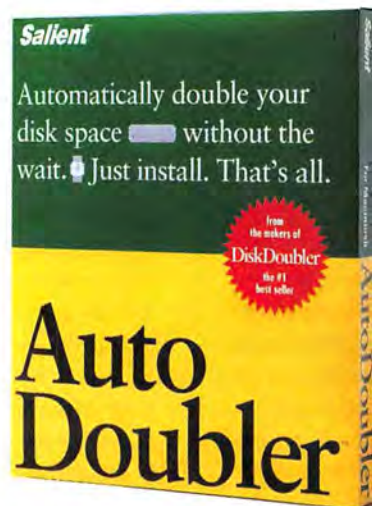
Introducing AutoDoubl™, the data compression program that's so fast, so safe, so automatic — it's virtually invisible. AutoDoubl's patent-pending technology can increase your disk space up to 100% or more. For 0% effort. And it's so fast, you'll hardly even notice your files are compressed! Put AutoDoubl in your Macintosh, and watch your disk space problems disappear.



The Data
Compression
Leader

Both available at
leading software stores.

Salient
SOFTWARE INC
(415) 321-5375



Salient Software, Inc., 124 University Avenue, Palo Alto, CA 94301. DiskDoubl and AutoDoubl are trademarks of Salient Software, Inc. © 1992.

CIRCLE 123 ON READER SERVICE CARD.



Kevin Curran, President, GCC Technologies



"GCC Technologies has been marketing quality Macintosh peripherals since 1985. We're advertising driven, and to determine the most cost-effective advertising vehicle, we thoroughly track every media buy GCC makes.

"In terms of return on dollars spent, MacUser gives us the best buy. MacUser's return on investment is approximately 20% better than the competition.

"The MacUser readers are oriented toward understanding the product and the marketplace.

GCC GETS COLOSSAL CLOUT WITH MACUSER

They're more careful customers. That's why MacUser reaches a higher fraction of business buyers and brand specifiers.

"We see the Macintosh continuing to penetrate the business market throughout the 1990s. I think the introduction of the new low-cost Macintosh systems is enabling large corporations to invest in the Macintosh standard on a more cost-effective basis than ever before.

"MacUser's superior editorial clearly attracts the buyers in a way that other publications simply can't. The key to advertising is results, which nobody produces like MacUser.

"For GCC, MacUser has been our number one monthly publication."



POWER TOOLS

Now you can check stock quotes from an on-line service while you drive to work. Cellular Data Link, comarketed by Mitsubishi ([708] 860-4200) and Microcom ([617] 551-1681), is the first cellular phone that has a built-in cellular modem with MNP 10 error correction. There are three models; the portable version runs on a rechargeable battery or cigarette lighter and plugs in to your Mac's modem port. Prices start at \$995.

By John Rizzo

Tools of the trade: Central Point Software has revamped MacTools in a comprehensive 2.0 package. It features automatic-backup, data-recovery, and virus-protection capabilities. Automatic backup is supported over a network and on all types of tapes, cartridges, and optical discs. The six data-recovery modules can even restore Microsoft Excel and Word files — the latter are usually difficult to recover, because of Word's flaky Fast Save format. The interface, which is identical in all the modules, is one of the best of any data-backup/recovery package. \$149; upgrade, \$49. (503) 690-8090. * If you don't like the keyboard command equivalents for the Finder commands — Command-W for Close and so forth — you can change them with **Finder 7 Menus!**, one of the utilities in Insanely Great Software's System 7 Pack (\$29.95), written by teenage whiz-kid Adam Stein. Another goody in the package, Rename Delay, lets you rename files as soon as you've clicked on them, à la System 6. (908) 549-0590.



Problematic PowerBooks: If you get stuck on the road with a misbehaving PowerBook, try these tricks. Some PowerBook 140s and 170s have a known bug, attributable to faulty shielding, that prevents you from writing anything onto a floppy disk. Try turning down the screen brightness — this often makes the drive start working. If your screen suddenly goes blank or displays random lines, you haven't lost the spreadsheet you've worked on for the past 100 miles. Gently squeeze the right side of the screen bezel, and the picture should return. If you have a third-party RAM card installed and the PowerBook suddenly won't boot, giving you discordant chimes instead of the usual startup sound, try visiting an authorized dealer and having the RAM card removed. If you get really stuck, you can call Apple's PowerBook Hotline at (800) 505-2772 for advice.

Simply serial: Orange Micro's Grappler, one of the first packages that let you print to non-Mac laser, inkjet, and dot-matrix printers, has been upgraded to Grappler IIsp (\$159). The new version includes TrueType fonts and a serial-to-parallel-conversion cable that supports throughput speeds as high as 57.6 Kbps. You also get GrapplerShare, a spooler that allows anyone on your network to access a printer that's connected to your Mac. (714) 779-2772. * **Hayes Connect 3.0** (\$130) is a serial server that lets you put any Mac serial device, such as a label maker, a plotter, or a modem, onto a network. Its best feature is the ability to create a device pool: If one modem is busy, the software automatically picks another for you. (404) 441-1238. ☞



More PowerBook Power

PowerBooks are lighter than their Portable predecessor, but at a price: shorter operating time away from an electrical outlet. Here's what you need to know to keep your PowerBook running as long as possible.

By James Bradbury

If you buy a PowerBook and then tote it on your next transcontinental flight to New York, you may be in for a surprise long before you cross the Mississippi. The "You are now running on reserve power and your screen has been dimmed..." message is likely to flash on your screen a few hours after takeoff, especially if you don't know these power-saving tips.

Screen

- The PowerBooks' backlit screens are their biggest power consumers. The rule of thumb is to keep your screen as dim as possible whenever your machine isn't plugged in. This means that if you're planning to work during a long plane flight, don't take the red-eye unless you've got room in your carry-on bags for a flashlight.
- In a well-lit room, the 170's active-matrix screen can be used with backlighting turned completely off, but even partial dimming saves power. The 140 and 100 screens are unusable without some backlighting, but keep it as low as you can.

Memory

- The Memory control panel has a cache-size setting that should be adjusted, depending on how much memory is installed in your PowerBook. The cache size determines how often you access (and wake up) your hard-disk drive. For a 2-megabyte PowerBook, set the cache to 64K; for 4 megabytes, set it to 128K; for 6 megabytes, 192K; and for 8 megabytes, 256K.
- If you have 6 or more megabytes of RAM, set up a RAM disk as a startup disk. This technique is especially useful for PowerBook 100 owners, because they can shut down their Macs without losing the RAM disk. To find out how to create a RAM disk, see page 108 of the PowerBook *User's Guide*.
- Don't use virtual memory when you're running on battery power.

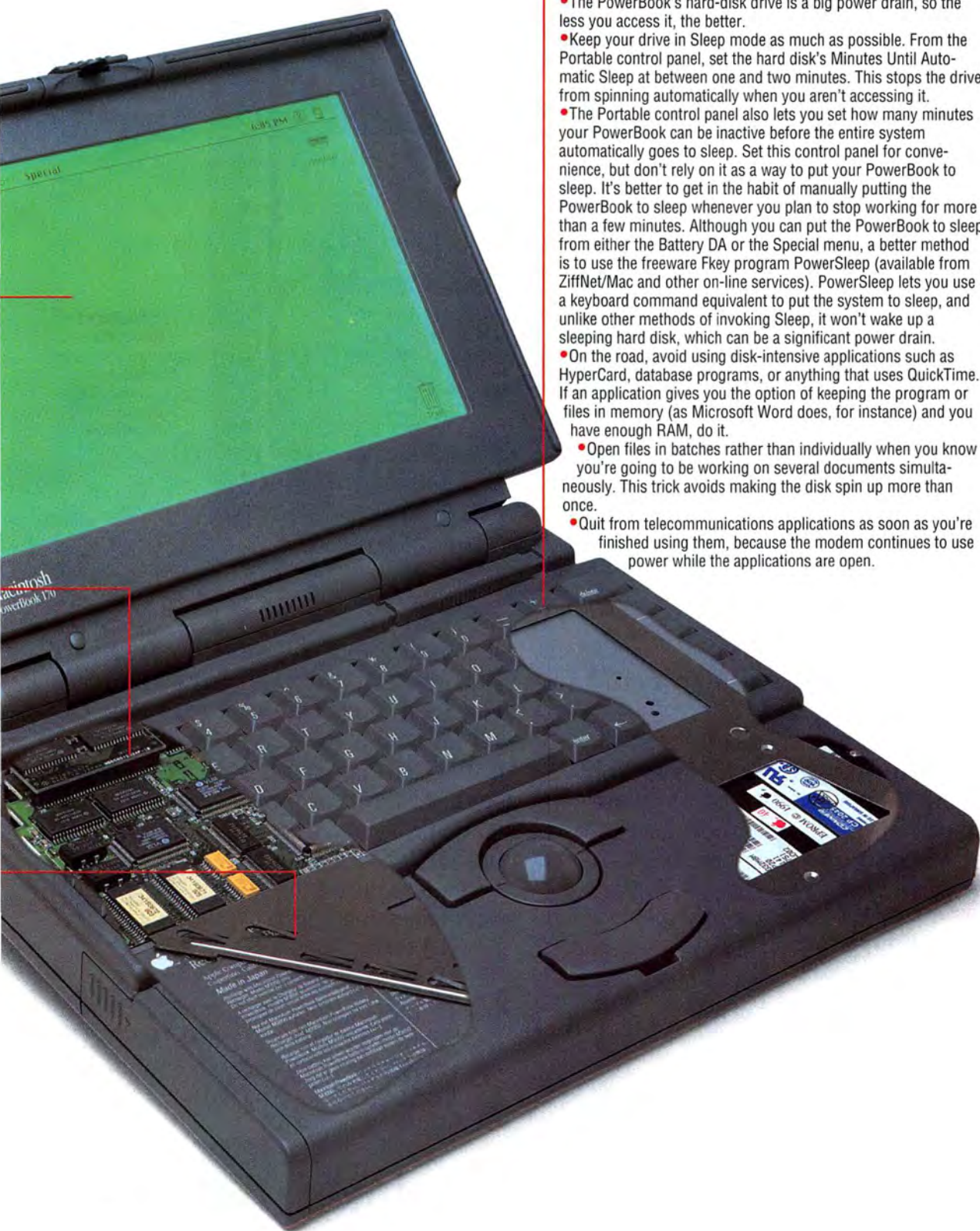
Clock Speed

- For PowerBook 170 owners, an important part of extending battery life is turning the Power Saver option on in the Battery DA (you need to click on the flag at the right of the palette to display this option). This causes the microprocessor speed to switch from 25 megahertz to 16 megahertz, which Apple says can extend battery time by 30 minutes.



Batteries

- Apple recommends that you drain the nickel-cadmium batteries that come with the PowerBook 140 and 170 once every three months. Whether this process actually improves performance is debatable, but it can't hurt. To drain the battery, leave the PowerBook on and ignore the successive warning messages that you are about to run out of power. The PowerBook 100 uses lead-acid batteries, which should never drain completely.
- When you're recharging batteries, make sure that there's power coming from the electrical outlet. The charging indicator in the Battery DA tells you that a plug is physically inserted, *not* that any electricity is flowing through it. You might see a warning dialog box that tells you that the plug is inserted without any charging occurring, but this happens only if your battery level is already below a certain point.
- Apple says that batteries should last a year if well cared for. That's probably a conservative estimate, but if a battery doesn't seem to hold a charge, it might be time to replace it. When you're ready to get rid of a battery, don't throw it away; take it to your Apple dealer for recycling.



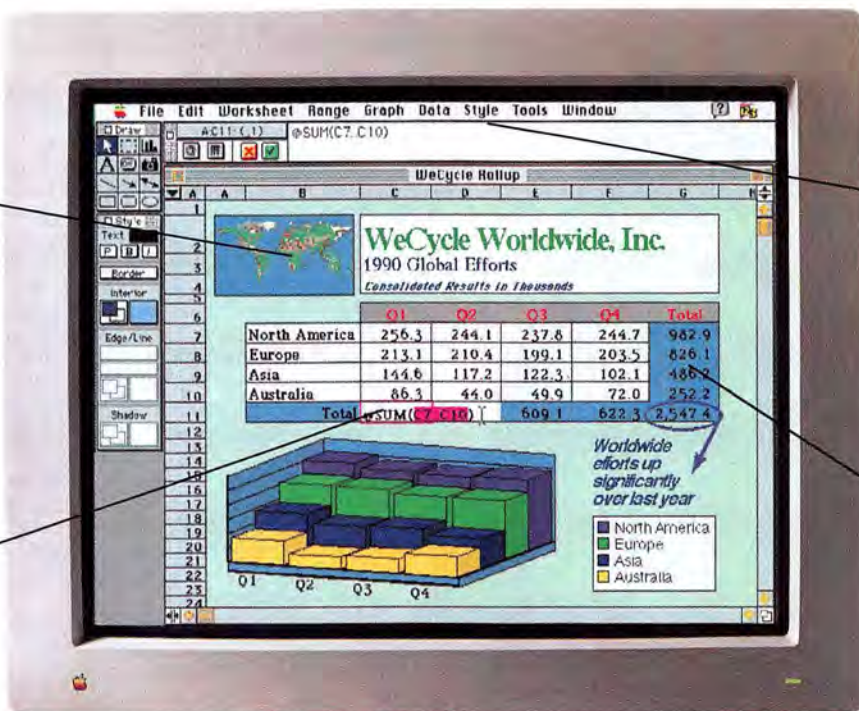
Drives

- The PowerBook's hard-disk drive is a big power drain, so the less you access it, the better.
- Keep your drive in Sleep mode as much as possible. From the Portable control panel, set the hard disk's Minutes Until Automatic Sleep at between one and two minutes. This stops the drive from spinning automatically when you aren't accessing it.
- The Portable control panel also lets you set how many minutes your PowerBook can be inactive before the entire system automatically goes to sleep. Set this control panel for convenience, but don't rely on it as a way to put your PowerBook to sleep. It's better to get in the habit of manually putting the PowerBook to sleep whenever you plan to stop working for more than a few minutes. Although you can put the PowerBook to sleep from either the Battery DA or the Special menu, a better method is to use the freeware Fkey program PowerSleep (available from ZiffNet/Mac and other on-line services). PowerSleep lets you use a keyboard command equivalent to put the system to sleep, and unlike other methods of invoking Sleep, it won't wake up a sleeping hard disk, which can be a significant power drain.
- On the road, avoid using disk-intensive applications such as HyperCard, database programs, or anything that uses QuickTime. If an application gives you the option of keeping the program or files in memory (as Microsoft Word does, for instance) and you have enough RAM, do it.
- Open files in batches rather than individually when you know you're going to be working on several documents simultaneously. This trick avoids making the disk spin up more than once.
- Quit from telecommunications applications as soon as you're finished using them, because the modem continues to use power while the applications are open.

Only one spreadsheet is all 1-2-3 and all Macintosh. Right down to the core.

Be manipulative—
Command your worksheet with direct manipulation of all data, graphs, drawn objects and scanned images.

In-cell vs. Excel—Enter data or formulas directly into a cell, bypassing the console. Sounds simple because it is.



Unified Work Environment—The menu never changes and all information resides in one file.

Publish and Subscribe—Change your data and the changes will be automatically updated across the network.

"1-2-3 for Macintosh...stands apart from its competition... by providing three-dimensional worksheet capabilities and the ability for users to perform in-cell editing."
—PC WEEK, DECEMBER 16, 1991

One look and Apple Chairman and CEO John Sculley called it "a spectacular product."* You see, this isn't just another version of a Lotus® 1-2-3® spreadsheet. It's a program that really grabs hold of the full power of Macintosh®.

Its friendly Mac® interface makes working with data, text

aaaaaa and graphics fast and easy. Plus, you'll have features that push the capabilities

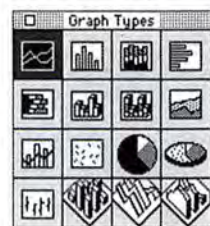
of System 7 to the limit. Like Publish and Subscribe, Apple® Events, Data Access Manager and Balloon Help.™

1-2-3 for Macintosh is compatible

with other versions of 1-2-3 and even reads and writes Microsoft® Excel files. So you can switch to 1-2-3 and never look back. What's more, with one press of the slash key, the 1-2-3 Classic® menu appears on the screen—great news for those of you coming from the DOS world.

See why the world's best-selling spreadsheet is the world's best choice for Macintosh.

To find out more about our \$150** competitive upgrade, call **1-800-TRADEUP, ext. 6586*****. Or visit your favorite dealer for a free working model.



Select from hundreds of graph variations, then directly manipulate and customize them to your liking.



Introducing 1-2-3 for Macintosh

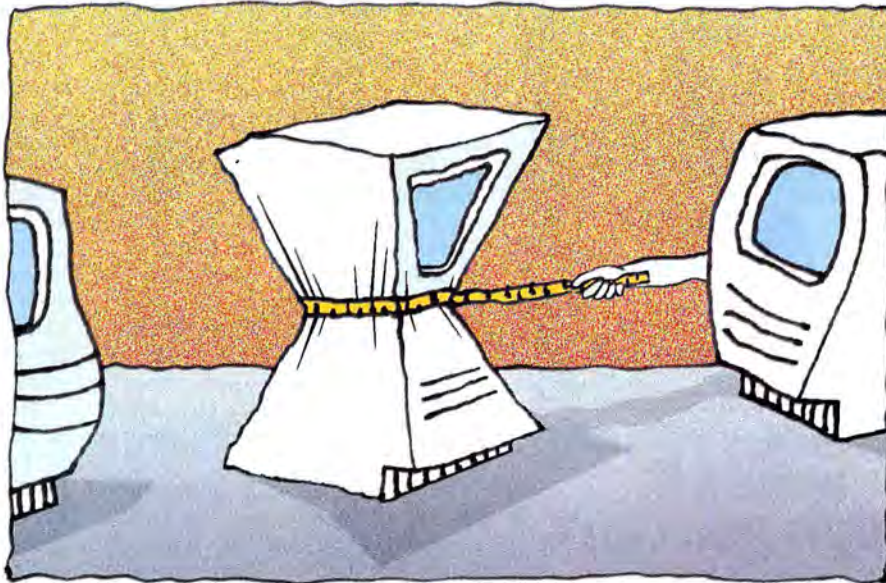
Lotus

© Copyright 1992 Lotus Development Corporation. All rights reserved. Lotus and 1-2-3 are registered trademarks of Lotus Development Corporation. Classic is a registered trademark licensed to Lotus Development Corporation. Apple, Macintosh and Mac are registered trademarks and Balloon Help is a trademark of Apple Computer, Inc. The Apple Logo is a registered trademark of Apple Computer, Inc. used under license. Microsoft is a registered trademark of Microsoft Corporation. Adobe Type Manager and the ATM logo are registered trademarks in the United States of Adobe Systems, Incorporated. *The Boston Globe, 6/4/91. **Suggested retail price. ***There is a \$5.00 fulfillment/handling charge when ordering the working model direct from Lotus. Please have your credit card and product package ready when you call. In Canada, call 1-800-60-LOTUS.

System Lite

Apple's default installation of System 7 hogs nearly 4 megabytes of hard-disk space. But do you really need everything the Installer stuffs into your System Folder?

By Bob LeVitus



Believe it or not, when the Mac first arrived in 1984, you could fit everything you needed for a day's work — your System Folder, a copy of MacWrite or MacPaint, plus a document or two — on a single 400K floppy disk.

My, how times have changed. System 7 can require ten times as much disk space as System 1 did — a real challenge to PowerBook users. But don't despair. Although you can buy a bigger hard-disk drive, there are less radical (read: less expensive) ways you can reduce System 7's overhead. I'm going to show you how to tweak the Installer and create the smallest possible System Folder for your needs. Then I'll go through the System Folder and suggest files that can be deleted. Finally, I'll take a brief look at using file-compression utilities, perhaps the best way of getting the most out of your current hard drive. One note before we begin: The file sizes mentioned in this column are estimates; your mileage may vary.

Customizing the Installer

Although the Apple Installer is easier to use than installers on other platforms (ever tried to install Windows?), it's also far from perfect and not very smart. If you choose Easy Install, as most users do, the Installer will install 48 files, many of which you will never need. If you try to remedy the situation by choosing Customize, you're presented with a confusing list of almost 40 items.

Apple cryptically recommends using the Customize option "only if you are sure that you want other than the recommended software." The Customize option is barely mentioned in the System 7 documentation, and many people are justifiably confused about how to use it, so here's a brief tutorial.

First, click on the Customize button. You'll be presented with a dialog box containing a scrollable list of items available for installation; choose the ones you want to install, by Shift-clicking on them. To find out more about an item, click on it; an explanation appears below the scrolling list.

Three categories of software — system software, printer software, and file-sharing/networking software — are arranged in five sections in the scrollable list. Let's start by deciding which system software to install: System Software for any Macintosh (the first choice on the list) or System Software for [a specific Mac model].

System Software for any Macintosh installs everything you need to start up any Mac model from your hard disk. System Software for [a specific Mac] installs only the resources that model requires. So, for example, if you choose System Software for Macintosh Plus, control panels such as Monitors and Colors are not installed. If you never expect to use your hard drive with a different Macintosh model, choose System Software for [your particular model]. But if there's a chance you'll someday need to use your hard drive with a



Machines you can write off. People you can't.

The National Cristina Foundation needs the old computers you're going to put out to pasture. Because computers you're planning to write off as useless, can prevent millions of people from being written off.

Your old computers can enjoy a fruitful second life — by giving new life.

Everyday, all over the country, we're putting computers like yours to work helping train people with disabilities, the disadvantaged and students at risk. In time, they become people who hum with the skills society needs. And sparkle with the sense of self-fulfillment that comes from being wanted, productive members of the community.

By sending us computers you plan to discard we can help develop this precious human resource — the more than 43 million Americans with differing abilities.

In the process you might just help us discover another Beethoven, Albert Einstein, Franklin D. Roosevelt or

Helen Keller. *Machines you can write off. People you can't.*



**National
Cristina
Foundation**

A not-for-profit foundation.

To donate computers call:

1-800 CRISTINA
(1-800-274-7846)

HELPING PEOPLE WITH DIFFERING ABILITIES
LEAD MORE PRODUCTIVE LIVES.

Donated computers and office equipment are tax deductible.

POWER TOOLS

BEATING THE SYSTEM

different Mac model, choose System Software for any Macintosh.

The last section of the list contains a set of items called Minimal Systems. These are used only to create high-density (FDHD) startup floppies. (Even a minimal installation of System 7 is too big to fit on an 800K floppy.) Min System for any Macintosh creates a startup floppy that works with any Mac model. Min System [for a specific Mac] creates a startup floppy that works with that particular model. Minimal System installs a System and the Finder and little else — no control panels, extensions, or DAs. The Installer does place the standard five subfolders (Apple Menu Items, Extensions, and so forth) inside the System Folder, however, and it provides an empty Control Panels folder as a DA. (It also installs a single font, 9-point Geneva in the System file.)

You must next decide which printer drivers to install — LaserWriter, ImageWriter, Personal LaserWriter LS, StyleWriter, and so on. Shift-click on each one you'll need. You also can choose Software for all Apple Printers, which automatically installs all eight drivers.

Finally, if you're on a network and will be sharing files, Shift-click on File Sharing Software. If you'll be using an EtherTalk or TokenTalk network, Shift-click on those items as well.

Now click on the Install button, and feed your Mac disks as it asks for them.

Shrinking the System (Folder)

Even if you've customized your System 7 installation, there are probably a few files you don't need in your System Folder. If you used the Easy Install option, that's almost certainly the case. If you have loads of empty space on your hard disk, getting rid of these files is probably more trouble than it's worth. But if your hard disk is almost full, you can free up as much as a megabyte through judicious file deletion.

For what it's worth, your Mac can function with nothing more than a System and the Finder in the System Folder. You don't need DAs, control panels, or extensions, although doing without some of them — such as the Chooser and General Controls control panels — would be inconvenient, to say the least.

If you do decide to delete files and later realize that you need or want them, you can run the Installer once more to create fresh copies of them. (Some files, such as

control panels, can be copied directly from the master system disks.) If reinstallation is too much trouble, copy each file to a floppy disk before you trash it. Then if you need it later, just drag it from the floppy to your System Folder.

We'll start with the Extensions folder, because it's most likely to contain stuff you can live without. First and foremost, if you're not connected to a network and aren't sharing files, get rid of AppleShare (72K), File Sharing Extension (168K), and Network Extension (93K). These files, along with the File Sharing Monitor and Sharing Setup control panels (more about them later), are needed only if you share files with other Macs. Not only that, but file sharing uses about 300K of RAM when it's turned on.

Next, get rid of printer drivers for printers you'll never use. So if you don't have an ImageWriter, trash the file named ImageWriter (45K); if you don't have a Personal LaserWriter SC, trash its file (72K). And so on.

A couple of other extensions you might want to trash are DAL (84K) and Finder Help (36K). DAL is used for accessing networked or remote databases; Finder Help contains the five screens you see when you choose Finder Shortcuts from the Help menu. (I suggest that you read the screens before deleting Finder Help, though.)

Now let's tackle the Control Panels folder. First, get rid of control panels that are inappropriate for your Mac. For example, if you have a black-and-white Mac, such as an SE, you don't need Color (12K). Next, if you're not sharing files, get rid of File Sharing Monitor (5K), Sharing Setup (5K), and Users & Groups (5K). Map (29K) is lame, so nuke it. Another file you can probably do without is Easy Access (12K), which lets you control the cursor from the keyboard and/or use a Mac one-handed. A complete description appears on page 354 of *Macintosh Reference*, the manual that comes with System 7 upgrade kits.

The Apple Menu Items folder contains the standard DAs. With the exception of the Chooser, you don't need any of the Apple-supplied DAs: Alarm Clock (12K), Calculator (8K), Key Caps (12K), Note Pad (9K), Puzzle (14K), or Scrapbook (11K). On the other hand, they're small and relatively useful (except for Puzzle), so you needn't toss them unless you're really hard-pressed for disk space.

Last but not least, take a look inside the

The System 7 File: Organizing the Apple Menu

One of System 7's best features is its customizable Apple menu, and clever users have developed a variety of ways to organize its contents. Reader Susan Doyle, of Minneapolis, recently shared her approach with us:

"I created more than a dozen aliases of my most often used applications and files. When I put the aliases into the Apple Menu Items folder, however, I found that they were listed alphabetically among my DAs. Although DAs are treated just like applications under System 7, I'd prefer to find Calculator near the top of the list, where it's always been — not mixed in with a bunch of other items in a long list.

"Then I remembered that I can rename DAs so that they appear in the order I want them. Instead of renaming my DAs, I renamed the aliases by making the apple character (Shift-Option-K) the first character in their names. Now my Apple menu has an alphabetical list of DAs, followed by a list of aliases, each of which is flagged with a little apple."

In a similar vein, if you want a file to appear at the top of the Apple menu, use one or more spaces as its first character(s). You can use this technique to group files and folders on the Apple menu. On my Apple menu, for example, aliases of folders begin with three spaces so they're grouped together at the very top. Documents begin with two spaces, applications begin with one space, and DAs aren't renamed at all. So when I pull down my Apple menu, I see (from the top): my folders in alphabetical order, followed by my documents in alphabetical order, followed by my applications in alphabetical order, followed by my DAs in alphabetical order. It's a painless way to make your Apple menu more manageable.

Submit your favorite System 7 tips, either by mail or by modem, to ZiffNet/Mac's MacUser Forum (please include your address too). If you submit the month's best tip, you'll not only receive notoriety and fame but you'll also get a spiffy (and rare!) "I Beat the System" T-shirt.

System file itself (double-click on it). The Installer places about a megabyte of fonts and sounds inside the System file, but you don't actually need most of them. If you're really determined to whittle down your System Folder, get rid of your least-used fonts (3K to 68K each) and sounds (2K to 8K each).

Other Space Savers

For those who are intent on paring down the System Folder, the techniques I've outlined should restore at least a megabyte of disk space. But in the grand scheme of things, saving a megabyte (or even 2) isn't good enough. For those whose hard disk is nearly full and who are not ready to buy a bigger drive, here are a couple more ways to maximize the existing space.

System 7's aliases provide a unique way of archiving infrequently used files and freeing up space on your hard disk. First, get a few floppy disks and label them clearly (I call mine Archive1, Archive2, and so on). Next, go through your hard disk and copy to the floppy disks files you don't often use. Finally, make aliases of the files on the floppies, and copy the aliases back onto your hard disk. Now, whenever you need one of these files, double-click on its alias on your hard disk. Your Mac will ask you to insert the proper floppy disk.

The other worthwhile option when disk

space gets tight is to get your hands on a file-compression utility such as StuffIt Classic (shareware), Compact Pro (shareware), StuffIt Deluxe (from Aladdin Systems), or DiskDoubler (from Salient Software). Each of these programs can compress a file by as much as 90 percent, depending on the type of file.

The StuffIt products and Compact Pro are totally manual — you choose files and then compress them. You must also decompress files manually before you use them. DiskDoubler, on the other hand, is semiautomatic. Once a file has been compressed with DiskDoubler, the file automatically decompresses and launches the appropriate application when you double-click on the file and recompresses itself when you close or quit the application.

The latest generation of file-compression utilities — AutoDoubler (Salient), StuffIt SpaceSaver (Aladdin), and More Disk Space (Alysis Software) — works in a way that is entirely transparent to the user. Merely install them and set a couple of parameters, and your files will be compressed and decompressed automatically as you use them. Not only that, but the programs can crunch files in the background when the computer is idle. ☐

Bob LeVitus is the author of *Son of Stupid Mac Tricks* and *Dr. Macintosh, 2nd Edition* and the proud owner of a new 535-megabyte hard drive.

COMPARE



WHO
DO YOU THINK
HAS **THE**
BEST PRICES ON
MACINTOSH
HARDWARE?

- A • MACCONNECTION
- B • MACWAREHOUSE
- C • MACZONE
- D • MACCENTER

NOT!

Turn to page 266 for
the answer to this
question, or call us!

800•950•3726
fax 512•476•3726

CIRCLE 1 ON READER SERVICE CARD.

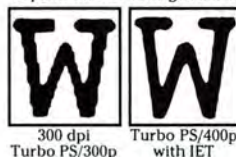
It doesn't take a rocket scientist to figure it out. But one did.



Quite a few scientific types focused on the heavens above have found that NewGen™ high-resolution, PostScript®-compatible printers offer advances found nowhere else on earth.

Like Image Enhancement Technology (IET)™, for character quality that's out of this world. Plus Automatic Recognition Technology (ART)™, to select the right interfaces and emulations for you. And Program Updating with the latest in controller technology to make your NewGen printer virtually obsolescence-free.

Resolution close up,
13 point Courier enlarged 500%.



Yet, for all their innovation, you'll find they're offered at very down-to-earth prices.

Take our TurboPS Pro Series, delivering incredibly crisp, professional documents and superb performance at up to 800x400 dpi for single and work group users alike.

We also offer the compact and very affordable TurboPS Personal Series, for 300 or 400 dpi resolution at 4 pages per minute.

Then there's the new T Series, with exceptional 1200x600 dpi in 11"x17" format for truly outstanding graphics capability.

You can add a second paper tray, IC memory cards, SCSI interface and other options as you like.

And with NewGen, you can count on solid customer and technical support as well.

All of which makes NewGen a leader in the printer technology race.

To learn more, or for your local NewGen Dealer, call today. We'll be happy to help you decide which of our machines is just right for your mission.



The Hi-Res People™

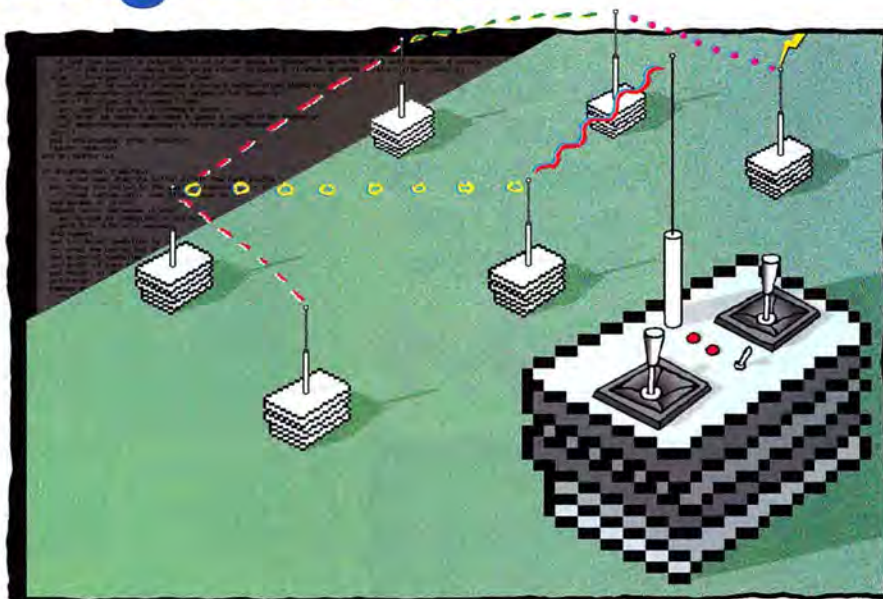
NewGen Systems Corporation
17580 Newhope Street, Fountain Valley, CA 92708
Telephone 714/436-5100 FAX 714/641-2800
Toll Free 1-800-756-0556
Dealer Inquires Welcome

© 1991, NewGen Systems Corporation. NewGen, NewGen Systems Corporation, NewGen logo, Image Enhancement Technology (IET) and Auto Recognition Technology (ART) are trademarks of NewGen Systems Corporation. PostScript is a registered trademark of Adobe Systems, Inc.

Controlling Events

HyperCard 2.1's support for Apple events gives you unprecedented control over other applications, especially HyperCard stacks on other networked Macs.

By Danny Goodman



HyperCard 2.1's foray into System 7-savvy focuses primarily on Apple events. Put simply, Apple events is an underlying technology in System 7 that allows one Mac program to send a message to another Mac program. The two programs may be on the same Macintosh, or they may be on different machines linked via a network.

In practice, many Mac developers are still trying to establish a role for Apple events in their products. In a family of related products, *program linking* (as it's called in System 7 parlance) can be a powerful ally — each program becomes a module within a larger application environment. For example, when a landscape architect plans a garden, a drawing program can tell a relational-database manager to add a new line item to an estimate document each time a tree is added to the plan; then the database manager can ask a project-management program to update a PERT chart for ordering and planting the various species.

The most challenging aspect of Apple events is the user interface. What tool do program designers provide for casual users to use in composing messages to other programs? Even experienced programmers must study *Inside Macintosh, Volume VI*, and the Apple Event Register to figure this stuff out.

Two Mechanisms

Fortunately, you don't have to be a hacker to experiment with the power of Apple events. HyperCard 2.1 provides two Apple-event

mechanisms, one of which lets you work entirely inside HyperCard. Importantly, the two mechanisms represent a distinction between HyperCard's external and internal Apple-event capabilities.

In the external structure, HyperCard (without the help of Apple-event XCMDs) can send a handful of standard Apple events to any other program on the same Mac and only two messages to programs on another networked Mac. Most of these messages are Apple-event-aware incarnations of commands that have long been in the HyperTalk vocabulary: `open <application>`, `open <document> with <application>`, and `print <document> with <application>`. Behind the scenes, HyperCard translates these commands into the more complex Apple-event command syntax before sending them to the designated program.

The principal focus of this article, however, is on HyperCard's internal Apple-event structure, in which a HyperCard stack running on machine A can send any HyperTalk message to a HyperCard stack running on machine B. More accurately, the messages go from program to program, not from stack to stack. This gives rise to an important limitation when designing projects around HyperCard's internal Apple-event mechanism: The HyperCard program that is to receive the message — the target program — must already be running. HyperCard on machine A cannot launch HyperCard on machine B.

HARDWARE THAT FITS



INTRODUCING the RealTech Trinitron

AT LAST...
A 75 Hz
ACCELERATED
24-BIT, 19"
SOLUTION!

\$2999



RealTech Trinitron System

Finally...affordable color breaks the price barrier for 19" Trinitron color systems!

Our **24-bit system** includes the RealTech RT-24 video card with pan-zoom and extended desktop. Socketed for up to 16 Mb of RAM! State-of-the-art engineering. On-board QuickDraw acceleration, 75 Hz vertical refresh rate. View 16.8 million colors at 72 dpi! 1024 x 768 resolution. Our **8-bit system** includes the RealTech RT-8 video card...a great starter system! Both monitors use a Trinitron® tube from Sony.

CPU	Monitor	Price
Mac II, IIx, IIcx, IIsi*, IIci, IIfx, SE/30 LC, Quadra 700 & Quadra 900	8-bit system	\$1999
Mac II, IIx, IIcx, IIci, IIfx, Quadra 700 & Quadra 900	24-bit system (accelerated)	\$2999

*IIsi solution retains PDS slot for the RealTech cache card.



**RasterOps
24-Bit
16" Color
System**

RasterOps
CONNECTION

\$2449

Value-priced 24-bit technology! Includes RasterOps 24Mx fully-accelerated 24-bit video card. 16.8 million colors, 72 dpi, 75 Hz refresh rate. 832 x 624 resolution. **A great mid-priced system for users who need quality color!**

We've been an authorized RasterOps dealer for 4 years; we support these excellent products with top-of-the-line service and warranties.

ColorBoard 24S	375	VideoTime.....	1199
ColorBoard 24Sx.....	639	ImagePak Still Compression ..	319
ColorBoard 24Mx	1199	TV Tuner	399
ColorBoard 24MxQ	1199	14" Trinitron 24-bit.....	979
ColorBoard 24XLi	1999	ClearView Classic 21"	1439
ColorBoard 24STV	799		
ColorBoard 264SE/30.....	719		
ColorBoard 8LC	559		
ColorBoard 8XL	479		
PaintBoard 24	1599		

**Other monitors available.
Please call for prices.**

Seiko/RasterOps 24-Bit 14" Color System

\$979

High-resolution Trinitron tube...view 16 million shades of color! 640 x 480 resolution, 72 dpi. 14" display has integrated tilt & swivel base. Includes RasterOps 24S video card.

43% brighter than the leading competitor!



Our buying power gives you

Guaranteed: If you don't



\$8895 Mac IIx 19"
Trinitron System, 1 Floppy
Drive, 8Mb RAM, 303 Mb MicroNet
Drive, 24-bit 19" Color Monitor and
Video Card, MacPro Plus Keyboard



\$2819 Mac IIsi B&W
Full Page System, 3 Mb RAM, 40
Mb Hard Drive, MacPro Plus Keyboard



\$3569 Mac IIsi 14"
Trinitron System, 5 Mb RAM, 105
Mb Quantum, MacPro Plus Keyboard

When you order from us, you order from computer experts, not order takers!

*All of our salespeople have a
minimum of 3 years of com-
puter experience. They're
trained in Apple's intensive
program, as well as our own.
We're proud of our team of
sales and service experts. They're ready to help
you (with a smile!) both before and after the sale.*



\$4115 Mac IIsi 14"
Trinitron System, 5 Mb RAM,
105 Mb Quantum, MacPro Plus
Keyboard, Cache Card



\$4695 Mac IIsi B&W
21" Dual Page System, 5 Mb
RAM, 105 Mb Quantum, MacPro
Plus Keyboard, Cache Card

APPLE POWERBOOK ACCESSORIES

Carrying Cases

**DayMaker
software
FREE with
your pur-
chase of
any carry-
ing case!**

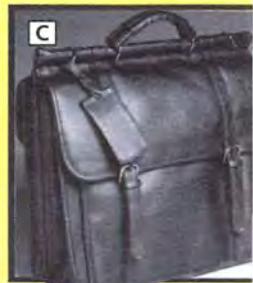


Cases A and B are specially designed of
1000 denier cordura nylon fabric and
high-density foam for maximum com-
puter protection.

A. Companion Case (Holds notebook
computer and
some access-
ories).....79

B. SuperBrief
Carryall
(Double-sided
case holds
notebook com-
puter, access-
ories, and
papers.)99

C. Executive Leather
Attache (Genuine leather case protects
notebook computer, accessories,
and more.).....169



Pocket Fax Modems

MASSfm 24/96 Modem.....209

Solectek Pocket Fax Modem209

ProModem 24/96 Remote Plus.....215

Global Village Teleport Fax179

Pocket Hard Drive

Hitch Hiker 80 (80 Mb Hard Drive) ...669

HARDWARE THAT FITS

FAX: 1-409-539-4141

Call: 1-409-760-2400

HOURS
8 am-7 pm CST

Prices are subje
to change.

1-800-972-3018

In the
U.S. &
Canada,
too!



\$1299

Microtek 600 DPI Scanner

Scanmaker 600ZS Color Scanner includes Adobe Photoshop — full version, with 24-bit color editing and color separation capabilities.

- 16.8 million colors
- 3 scanning passes (red, green and blue filters)
- 14 brightness settings for each color plane
- Scanning speed 150 seconds

High-resolution color scanner capable of scanning 16 million colors at up to 600 dots per inch. Outstanding image quality in a compact, flatbed design.

Microtek Scanmaker Slide Scanner.

The affordable 35mm color slide scanner. Scans landscape or portrait slides at 1850 dpi. Captures 24-bit color and 8-bit grayscale. Bundled with PhotoShop, you'll be able to produce 4-color separations from your color slides.



\$1899



\$1249

TI MicroLaser™ Plus.

300 dpi, HP LaserJet Series II emulation standard. 1.5 Mb RAM. 9 pgs./minute; 17 resident fonts; 3,000 pgs./month duty cycle. Optional accessories: 2nd paper tray, separate envelope tray.

MICRONET STORE

MacUser and rated MicroNet best mass stor

...and we're the ONLY
dealer for these aw

*If you're not sure exact
buy, just give us a call.
you determine the ri*

All of MicroNet's high-quality
warranty; an optional second
continues to lead the industry

High-Performance Quadra Drives

MB	MB Per Sec.	Price
Q9i-414	2.3	\$1769
Q9i-515	2.9	1949
Q9i-644	3.0	2379
Q9i-1000	2.5	3099
Q9i-1300	3.7	4659
Q9i-606R	3.6	3809
Q9i-828R	4.1	4269
Q9i-1030R	5.2	4629

Other Storage Devices

MO-128 Rewritable Sony Opt
MD-5000 DAT
MR-45 Micro/Removable Cart
MR-90 Micro/Removable Cart

RealTech Dual- Page Displays

\$995!

*No more squinting and
scrolling! Seeing two
pages at once will save
you hours of time.*

The latest in flicker-free
monochrome technology
provides true WYSIWYG!
21" landscape display with
1152 x 870 resolution, 74
dpi. Vertical refresh rate of
75 Hz, full gray-scale
capability, and flat CRT (P4
phosphorus, polished
screen). 1-year warranty.



CPU	Monitor	Price
Mac SE	Mono	\$995
Mac II, IIcx, IIci	Mono	\$995
IIx, IIfx, SE30	GS 256	\$1295
Mac IIsi	Mono	\$1059

RealTech Full-Page Displays

Quality, flicker-free images at a price that lets you
experience the convenience of large screenviewing.

- 15" portrait display
- 870 x 640 resolution, 80 dpi
- Vertical refresh rate of 74 Hz
- Flat CRT, P4 phosphorus, anti-glare screen
- Full grayscale capability
- One-year warranty

CPU	Monitor	Price
Mac II, IIcx, IIx, IIfx, SE, SE/30	Mono	\$579
Mac II, IIcx, IIxi, IIx, IIfx	GS 256	\$1079
Mac IIsi, Quadras	GS 16	\$449



\$449!



YOUR buying power!

FAX:
1-409-539-4147

All prices are subject to
change without notice



\$3299

microLaser XL Turbo.
16 pages per minute!
 600 dpi with Adobe PostScript
 Level 2 and RISC-based
 processor. 2.5 Mb RAM. 16
 pages per minute; 35 resident
 fonts; 25,000 pages per month
 duty cycle. Optional 2nd paper
 tray and SCSI interface.

microLaser Turbo.....1939

STORAGE DEVICES

**MacWorld have
 called it "one of the
 best storage devices..."**

authorized mail order
 award-winning drives.

**Why what size you should
 We'll be happy to help
 find the right storage solution.**

drives come with a one-year
 warranty. A 3-year warranty
 is available. MicroNet
 is in its most competitive market.

External Storage Devices

MB	MB Per Sec.	Price
SB-644NP	3.0	\$3099
SB-1300NP	3.7	4899
SBT-1288NP	3.1	5849
SBT-2600NP	3.8	9449
SB-606NPR	3.6	4829
SB-1288NPR	4.1	6149
SB-2600NPR	4.4	10,109

Local	1779
.....	2379
Bridge Drive.....	639
Bridge Drive.....	759



**"WE'RE
 NOT HAPPY
 (unless you are!)"**

*We want you to become
 a repeat customer. So we
 give you discount mail-
 order prices...superior
 service & selection...our
 unbeatable hassle-free
 warranty...toll-free tech
 support...and an unsur-
 passed return policy.
 What's more, we do it all
 with a smile...because
 that's what you deserve."*

WE GUARANTEE

*...you'll be pleased with
 the power, performance,
 and competitive price of
 any of our products,
 which are:*

- Priced LESS than the comparable Apple product.
- Backed by a minimum 1-year warranty and our

MONEY-BACK GUARANTEE.

*If you're not satisfied
 with what you buy from
 us, just call. We'll refund
 your purchase price
 (minus consumables, for
 printers).**



* Before returning merchandise, we must ask that you call our Customer Service Dept. at 1-800-972-3018 to receive a returned merchandise authorization number (RMA). This number must be included with any products you return. No C.O.D. returns, please. Thank you for your cooperation.
This ad was created entirely on Macintosh systems, from concept to film. Call us!



**WE ONLY
SELL NAMES
YOU CAN TRUST.**

RasterOps

MICROTEK

AE

Applied Engineering®

ASANTÉ

**Real
Tech™**

**TEXAS
INSTRUMENTS**

PLI



**RealTech
Laser Printer**

**500%
FASTER!**

- RISC processor
- 2 paper trays
- 9 pages/minute
- SCSI port

\$1995!



**RealTech
Laser 400**

- RISC processor
- 15 ppm (letter size)
- 8 ppm (11x17)
- 300 or 400 dpi

\$4495!

**SEE OUR OTHER AD FOR
COMPREHENSIVE INFORMATION
AND PRICE COMPARISONS**

like it...we'll buy it back!



A NOTE FROM THE PRESIDENT:

"We demand that the products we sell are backed by absolute top quality, service and delivery. When our suppliers don't provide that, we search for sources that will meet your (and our) highest expectations. We've combined forces with Applied Engineering and Fusion Data Systems to offer the best products on the market."

Réal Provencher

APPLIED ENGINEERING

Applied Engineering is Apple's oldest 3rd-party developer. For 12 years they've sold and installed more products for Apple computers than any other company except Apple. Their technical services department has over 70 years of combined experience working on Apple products.

After selling 1,000,000+ units...they're simply the best in the business!

TransWarp NuBus

68040-25MHz	1929
TransWarp SE 68030-25MHz (with 25MHz68882)	739
TransWarp SE 68030-40MHz (with 40MHz68882)	1369
TransWarp LC-33MHz w/FPU	939
TransWarp LC-40MHz w/FPU	1239
1.44 Plus Super Drive	279
Quadra w/AE Shadow	189
LC Heavy-Duty Power Supply	99
Quick Silver for IIsi	219



FUSION DATA SYSTEMS

TokaMac 68040 Accelerator Boards

Highest performance upgrade available for the IIfx, IIsi, SE/30 or LC. TokaMac runs applications up to 300% faster than a IIfx!



Provides significant productivity improvement to users whose primary applications include CAD, graphics, multimedia, modeling, simulation and analysis, animations, spreadsheets, and heavy "number-crunching" routines. Processes at 20 MIPS and 3.5 MFLOPS. System 7.0 compatible; no re-booting required.

TokaMac CI	2149
TokaMac SX (SE/30 and Si)	2019
TokaMac LC	1879

WACOM TABLETS

Standard 12 x 12	779
Electrostatic 12 x 12	859
Standard 12 x 18	1169
Standard 6 x 9	549

Choice of stylus or 4-button cursor. Please specify when ordering.

PLI (Peripheral Land)

Infinity Turbo 44	629
Infinity Turbo 88	829
Quick SCSI w/cable	339

QUANTUM HARD DRIVES

Reliable drives backed by a two-year warranty.

Internal Hard Drives

Q 52LP	249
Q 105LP	369
Q 240S	769
Q 425S	1389

External Hard Drives

Q 52LP	335
Q 105LP	455
Q 240S	855
Q 425S	1475

We've run our business on Macs from the very beginning.

We know networking...so if you have a question, try us!

We run our entire business on Macs; we've had to deal with networking issues for more than six years. We use Shiva, Farallon, Dayna, and Asanté networking products in our day-to-day operations, and we know from experience how they work. We can tell you firsthand how a twisted pair Ethernet network is configured and interfaced with a LocalTalk network. If you already have a sticky network issue, our sales consultants will team up with one of our technical specialists to find a custom solution for you. Give us a call!

ASANTÉ

Asanté continues to lead the pack with quality Ethernet products at affordable prices...if you don't know whether you need 16 or 64K call us; we'll tell you!

16K Cards (NuBus)	169
64K Cards (NuBus)	219
Mini 10T Hub	269

CABLING

Hypernet Din 8 Connectors	27
Hypernet DB-9 Connectors	27

CAYMAN SYSTEMS

GatorBox CS	2029
GatorPrint CS	399

SHIVA

Ethergate	1449
Fastpath 4	2139
Netbridge	459
NetModem 9600 v.32	1299
NetModem/E	1849
Netserial	299

FARALLON

Star Connector	17
Star Connector EN	109
Star Controller 24 Port	1389
Star Controller EN	1369

DAYNA

DaynaPORT-T	159
DaynaPORT-T w/FPU	239
EtherPrint	335
EtherPrint Plus	605



SOFTWARE

AppleShare 3.0	980
AppleTalk Internet Router	330
Carbon Copy Mac, 2 User	189
Data Club, 3 User	215
GraceLAN (50 User)	285
Liaison v3.0	263
QuickMail, 10 User	335
Timbuktu Remote v3.1	125
Timbuktu v3.1	95
Tops	199

EVEREX

EMAC Silhouette Trackball	79
EMAC 150 Mb Tape Backup	665
EMAC Pocket Fax Modem	309



\$75

ZOOM MODEMS

Zoom 2400	75
Zoom FX 96/24v	149
Zoom 9600 v.32/v.42 bis	419

1-800-972-3018

FAX: 1-409-539-4141

Toll-free 800# for the U.S. & Canada, too!

CIRCLE 199 ON READER SERVICE CARD.

MacUser MEANS BUSINESS COMING SOON!

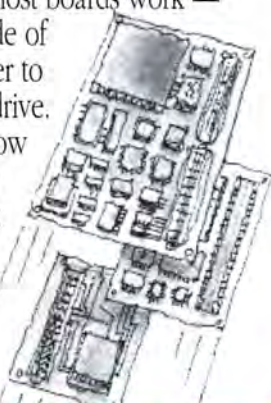
THE NO-RISK HARD DISK: STORAGE BUYER'S GUIDE

If you've got a drive for drives, dive into the in-depth Storage Buyer's Guide, covering 3.5" gigabyte hard drives, 3.5" optical drives and 5.25" optical drives. This MacUser Labs report compares and evaluates these drives on performance, design, construction, service and packaging — with an overview of how much you'll pay for the features you want. Plus, a complete directory of available storage products and a bibliography of previous MacUser storage articles. MacUser drives more Mac purchases.



ZIPPY SCSI 2 ACCELERATORS -

How SCSI 2 host boards work — from the inside of your computer to the external drive. Bar charts show performance improvement for every kind of Mac. Only in MacUser.



**JULY AD CLOSE:
Wednesday,
April 22, 1992**

POWER TOOLS POWER PROGRAMMING

Example 1: Command for Getting Address of Target Program

```
on mouseUp
  answer program "Choose a colleague's Macintosh:"
  if it is not empty then put it into field "Target -
  Address"
end mouseUp
```

Event Scenarios

Logistically, this limitation will probably affect your stack and network designs, so it helps to plan your projects around two typical scenarios: two users communicating directly with one another or multiple users sharing information stored in a common stack.

For the two-user scenario, the need for HyperCard to be running on both machines is not a problem, because both users are probably communicating in real time. The public-domain game Hyper-BattleShip!, crafted by members of the Claris HyperCard team, is an excellent example of this kind of interaction — and an outstanding source of HyperCard-to-HyperCard Apple-event scripting examples. Another use might be a direct person-to-person messaging system.

The multiuser scenario is more complex. If several users are to share a stack in a groupware environment, then some Mac on the network must always be running HyperCard. Fortunately, in System 7, HyperCard can merrily perform its Apple-event tasks in the background, so one Mac with some spare memory can act as the HyperCard "server." Advanced file-server software such as AppleShare 3.0 allows your network to run HyperCard on a file server while keeping the server available for its other tasks.

There's one more catch to multiuser access. For you to transfer data to or from a shared stack, that stack must be both open and active. The good news is that your HyperCard stack can open or activate the shared stack under script control.

Setting up a shared stack in this manner begins to overcome the inherent multiuser-access limitation of HyperCard. In most network situations, only one user at a time can access an unlocked HyperCard stack. But Apple events allows multiple users to communicate with an already open stack. You're not actually going to the stack in the traditional HyperCard sense (this is not multiuser stack browsing) but merely sending a message to, or receiving

a message from, an open stack. Moreover, messages are handled serially — one at a time and first come, first served. Therefore, you should avoid lengthy processes in these shared stacks, which might delay another user's access. Send messages or request data that can be processed quickly in the shared stack.

Event Ingredients

Sending an Apple event from one HyperCard program to another requires three ingredients: program-linking access, the address of the target program on the network, and the HyperTalk message.

Program linking is a System 7 feature that's far from intuitive. To set up one Mac's HyperCard to be shared by other users requires you to engage program linking in two places. First, open the Sharing Setup control panel and click on the Start button at the bottom of the window (if the button is labeled Stop, then program linking is already on). This is a global setting that makes your Mac visible on the network as a machine that may have linkable applications running.

Next, select the HyperCard program (not the stack) in the Finder and choose Sharing from the File menu. Check the Program Linking check box. This lets others on the network send Apple events to this copy of HyperCard.

You identify the target program by a three-part address consisting of the AppleTalk zone, the name of the Mac as it is known on the network, and the name of the program as it is known to the Finder. This assumes, of course, that all the network participants have named their Macs (in the Sharing Setup control panel) and that you have performed the program-linking steps listed above.

Acceptable HyperTalk syntax for the address is `<zone>:<Mac name>:<program name>`. If the network has only one zone, then the first parameter is replaced by an asterisk. If the target program is on the same Mac, then the second parameter too is an asterisk.

Example 2: Button Script for Sending Notes to Other Users

```
on mouseUp
-- display program linking dialog, restricting program
-- listing to HyperCard only.
answer program "Choose a recipient:" of type "WILDep01"

-- if you selected all the right stuff, then put address
-- into local variable and extract Macintosh name to
-- put into user-friendly dialog box below.
if it is not empty then
    put it into targetAddress -- store whole address

    -- new property in HyperCard 2.1
    set itemDelimiter to colon

    -- extract Mac name
    put item 2 of targetAddress into targetMac

    -- restore to default setting
    set itemDelimiter to comma

    -- display Ask dialog box for you to enter a note
    ask "Enter your note to " & targetMac & " here:"

    -- if you entered a note, then tell the target
    -- Macintosh to display the note in an Answer dialog
    -- box on the target Macintosh. Arguments of Answer
    -- command must be between quotes; syntax here allows
    -- "it" to evaluate to actual note text and then slap
    -- quotes around the note.
    if it is not empty then
        send "answer" && quote & it & quote to
        to program targetAddress without reply
        -- if there is a problem sending the Apple event,
        -- display error message in an Answer dialog box on
        -- your Mac
        if the result is not empty then answer the result
    end if
end if
end mouseUp
```

The easiest way to obtain the address of the target program is to use the program-linking dialog box, which you can trigger with the **answer program** command, shown in Example 1. HyperCard must be running on the target machine in order to be listed in the dialog box. If the target program and Mac are always the same, you can store this address in a field of the user's stack so that the user doesn't have to go through this dialog box each time to send a message.

The first time your stack sends a message to another user during a session (that is, since startup), you see the standard FileShare log-on dialog box. If the target Mac has enabled guest access in the Users & Groups control panel, then you can log on as a guest without a password.

The final ingredient is the message

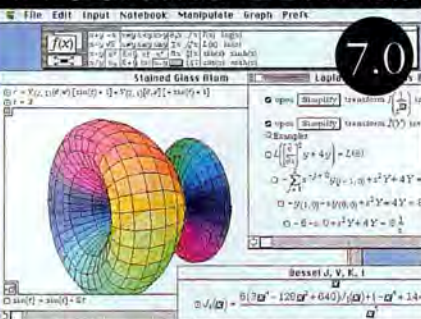
itself. Your stack can send two types of message to another HyperCard program: a command or a request for data.

Sending Messages

HyperTalk's syntax for sending a command is **send <command> to program <zone>: <Mac name>: <program name> [without reply]**. The optional parameter at the end simply sends the message and frees your stack from waiting for the target stack to finish executing the command. By granting you program-linking access, the target Mac gives you virtually full control over what happens in its copy of HyperCard. Example 2 shows a script for sending a note that appears on the target Mac as a HyperCard Answer dialog box.

A command can also be a HyperTalk

Mathematics Visualized. Problems Solved.



Theorist mathematical notebooks with real symbolic equations. **Theorist®** is an interactive symbolic math and graphing program with a graphical user interface that makes mathematics easy-to-use. It is powerful enough for the advanced scientist, engineer, and educator, yet intuitive enough for the beginning student.

"[Theorist] is without question the easiest symbolic math program to use. ... In terms of interface design, Theorist is the best Macintosh symbolic math program... For mainstream science and engineering practice, Theorist will likely be the program that finally brings the advantages of symbolic computation to the average Macintosh user."

— MacWorld magazine, May 1990.
— Five mice review, MacUser magazine, June 1990. ★★★★★

"Theorist... surpasses the highly rated Mathematica... in interface and execution."

— MacUser magazine, Editor's Choice Award, Best Math Program of 1989.

Equations Made Easy.

$$\delta I_M = \frac{1}{2} \sum_n m_n \int_{-\infty}^{\infty} dp \left[-g_{uv}(x_n(p)) \frac{dx_u(p)}{dp} \frac{dx_v(p)}{dp} \right]^{-1/2}$$

To incorporate typeset quality equations into your technical documents quickly and easily, get **Expressionist®**, the leading equation editor for the Macintosh.

"An excellent toolkit that all technical people should have at their disposal."

— Jean-Louis Gassée, former Apple Computer Inc. executive.

Call 1-800-UC-R-MATH

for demo disks, a video, and more info.



Prescience

939 Howard St. #101, San Francisco, CA 94103, FAX: (415) 882-0530

CIRCLE 127 ON READER SERVICE CARD.

CoStar's new ergonomically designed trackball beats the competition hands down.



Old fashioned trackball

Stingray trackball

Unlike its predecessors, The Stingray™ trackball was designed to work with the human hand. Its low profile and small ball offer a natural position, reducing strain on the hand, wrist and forearm. And the big buttons make clicking a sure thing.

The Stingray lists for \$129. Existing trackball owners can upgrade for \$79. Call 1-800-4-COSTAR or 1-203-661-9700.



Fax: 1-203-661-1540.

©1992 CoStar. CoStar and Stingray are trademarks of CoStar Corp.

CIRCLE 88 ON READER SERVICE CARD.

The proof is in our 1200 dpi output.

Many companies claim their printer produces quality output, but how many actually show you?

At Printware, we're proud of our *true* 1200 dpi output—and we like to show it off. Our 11"×17" format 1217 Pro-III laser printer creates sharp text and detailed halftones on plain paper.

Since the 1217 Pro-III can be operated for as little as 4¢ per page, it is an economical alternative to typesetting for high-resolution PostScript® output.

Yours for only \$17,990, the 1217 Pro-III can easily improve the quality of your output. Give Printware a call today.

1-800-456-1616 ext. 76

Printware

1385 Mendota Hts. Rd. • St. Paul, MN 55120
(612) 456-1400 • FAX (612) 454-3684



CIRCLE 157 ON READER SERVICE CARD.

POWER TOOLS

POWER PROGRAMMING

You don't have to be a hacker to experiment with Apple events — HyperCard 2.1 provides two Apple-event mechanisms.

message that will be executed by handlers in the target stack, but for such a command to be executed, the target stack must be open and active. Fortunately, you can use regular HyperTalk commands to open the target stack and execute the command. Of course, if the user on the target machine is using HyperCard for other purposes, that machine will suddenly appear to be haunted as stacks seem to change willy-nilly. Or if HyperCard is running in the background, underlying stack windows appear to open on their own — still spooky.

To extract information from a stack running on another machine, you can use the **request** command and pass along any expression the target stack can evaluate, including functions (either HyperCard's built-in functions or custom functions in the stack) and object properties. For example, to find out if a particular stack is the current stack on the target Mac, your stack issues the following command: **request "short name of this stack" from program "*:Joe's Mac:HyperCard"**. The value comes back in HyperCard's standard **it** variable. If **it** doesn't contain the name you want, then send messages to the other program to go to the desired stack.

I've only scratched the surface of HyperCard Apple eventing. To demonstrate the internal Apple-event techniques, I've put together a simple stack called In-Out Board, a basic electronic pegboard that lets you track the whereabouts of others on a network. You can download the stack from ZiffNet/Mac (*MacUser's* on-line service) — look for the filename INOUT.CPT in Library 6 (Stackroom) of the Download & Support Forum. Or send your request (include the article name) and a check (\$5 in North America, \$10 outside North America) to Concentrix Technology, 1875 S. Grant Street, Suite 760, San Mateo, CA 94402.

Danny Goodman cofounded Concentrix Technology, maker of the Connections information manager, and is the author of *The Complete HyperCard 2.0 Handbook* and *Danny Goodman's Macintosh Handbook*.

PRINT *QuickKor* PRINT LONGER!!

**POSTSCRIPT LEVEL 2
PERSONAL LASER PRINTER**

*It's got speed.
It's got style
with the QuickKor TS
you'll be printing
for a long, long while!*

*Save
even more
with this
upgrade
coupon!*

**QuickKor TS
RAM UPGRADE**

**30%
OFF**

1 MB upgrade
to 3 MB total

\$132 Reg. \$189

2 MB upgrade
to 4 MB total

\$202 Reg. \$289

TONER KIT

the price is a total convenience.
This is printing that is unopposed
to look like copy but since I can't
read it on to look like copy but
since I can't read it on

R KIT

the price is a total convenience.
This is printing that is unopposed
to look like copy but since I can't
read it on to look like copy but
since I can't read it on

KIT

the price is a total convenience.
This is printing that is unopposed
to look like copy but since I can't
read it on to look like copy but
since I can't read it on

LETTER

LETTER

LEGAL



QuickKor TS

\$1988

Lease for only \$75/mo.

- 35 genuine Adobe P/S fonts
- Auto switch between paper trays
- Super fast RISC controller
- 2 MB RAM upgradeable to 10
- SCSI port for adding a hard drive
- Compact design
- Includes parallel/serial port for DOS

*WOW!!
Postscript
Level 2 Printer
for under
\$2000*

Includes everything you need for a year!

- Cables • 3 Toner Cartridges
- Both Letter and Legal Paper Trays



*Call
MacFriends
Today...
The QuickKor
The Better!!*

Personal and Business Leases Available!

Call Toll Free Today!

800 331-1322

**FEDERAL
EXPRESS**

24 HOUR QUICKFAX: (503) 286-8710 LOCAL: (503) 286-9350

**STOP!
ASK ABOUT**

**QuickKor
Kare**

- 2 years extended service
- Next day air equipment replacement
- Unlimited toll free technical support
(Unlimited hand holding by experts!)

CIRCLE 92 ON READER SERVICE CARD.

NOTEBOOK SYSTEM

THE OUTBOUND



Meet the new Outbound™ Notebook Systems. Smaller, lighter and faster than their Apple® counterparts, the Outbound Notebook Systems sport an ingenious modular design that lets you "mix and match" the CPU, hard drive, and memory you want, *before and after you buy*. You get the performance you need right from the start. Then, as your hunger for power grows, you can upgrade your Notebook simply and easily with standard low-cost modules.

Don't give up anything

Outbound's "mix and match" system lets you choose from two to 14 MB of RAM, a hard disk from 20 to 120 MB, and lightning speeds of 20 to 33 MHz. With any combination, you'll have all the power and memory you need for your demanding applications. Naturally, the Outbounds are equipped with all of the ports you'd expect in a Mac®: a standard SCSI, communications, sound, ADB and printer. There is even a built-in microphone and speaker.

Enjoy Mac compatibility

Your Outbound Notebook is ready for action the minute you unpack the box, because the Macintosh ROM is already installed for compatibility with the thousands of Macintosh applications. Systems come with the memory conscious System 6.0.7 installed, and are completely compatible with System 7. And of course, all models include an internal SuperDrive™ equivalent 3½" floppy disk drive for working with high and low density Mac and MS-DOS diskettes.

Perform big business in small places

Small enough to fit in most briefcases, all models measure 8.5 x 11 x 2.1 inches, weigh only 6.25 pounds, and boast a full-size, silent keyboard. In tight quarters, use the keyboard mounted TrackBar™ to point and click. Or, add a mouse or other ADB pointing device. The backlit LCD screen is large and easy to read, and provides 17% more displayable area than the Apple PowerBook™ screens.

Notebook prices based on direct sales. PowerBook prices reflect published Apple retail pricing. Technical specifications and prices subject to change without notice. The Outbound name, logo and TrackBar are trademarks of Outbound Systems, Inc. Apple, Macintosh and Mac are registered trademarks of Apple Computer Inc. PowerBook and Apple SuperDrive are trademarks of Apple Computer Inc. All other brand and product names mentioned herein are trademarks or registered trademarks of their respective holders.

The perfect portable is the one you design yourself.

What the experts say:

"Outbound offers top-notch portable Mac."
MacWEEK Magazine

"Outbound's notebooks are solid machines and deserve serious consideration by anyone contemplating buying a Mac notebook."
Macworld Magazine

"Outbound's new Notebook System has the unique ability to grow along with your requirements - and your budget."
MacUser Magazine

"Innovative touches, a high degree of compatibility, and moderate pricing make the Outbound Notebooks strong competitors with Apple's portable Macs."
Portable Office Magazine

"For me, the Outbound Notebook is the better choice."
BYTE Magazine

MODEL	THE OUTBOUND NOTEBOOK			MACINTOSH POWERBOOK		
	2000	2030E	2030S	100	140	170
Upgradeable CPU and Hard Disk	YES	YES	YES	No	No	No
Internal Floppy Standard	YES	YES	YES	No	Yes	Yes
Processor Speed	20MHz	25MHz	33MHz	16MHz	16MHz	25MHz
Maximum Hard Drive Available	120MB	120MB	120MB	20MB	40MB	40MB
Full Size Silent Keyboard and True Notebook Size	YES	YES	YES	No	No	No
Maximum RAM Available	4MB	14MB	14MB	8MB	8MB	8MB
Math Coprocessor	No	Optional	Optional	No	No	Yes
Maximum Silicon Disk Memory (RAM) Available	12MB	50MB	50MB	6MB	6MB	6MB
Price	2000/220 \$1999	2030E/220 \$2499	2030S/440 \$3899	100/220 Ext. Floppy \$2199	140/220 \$2899	170/440 \$4599

ORDER DIRECT AND SAVE- PRICES START AS LOW AS \$1999

You can order your Outbound Notebook System right from the folks who make it. Just call toll-free and use your credit card. And, when you call, be sure to ask about our low-cost financing.

Smaller, lighter, faster and available now!

There's no reason to wait. Start enjoying the Macintosh environment you know and love on the road now. Let us customize an Outbound Notebook for you today. There's no risk when you buy, because every Outbound Notebook System purchased direct comes with a FULL 10 DAY MONEY BACK GUARANTEE OF SATISFACTION, one year warranty, and toll-free customer support.

ORDER DIRECT TODAY AT:

1-800-444-4607

IN CANADA CALL 1-800-463-3257

or call Outbound for the dealer nearest you.
7 a.m. to 6 p.m. Mon-Fri. and 8 a.m. to 4 p.m.
Saturdays MST. Visa, MasterCard and American Express accepted. Overnight shipping available.



Cost-effective upgrades are quick and simple thanks to Outbound's unique modular design.



Outbound Systems, Inc. 4840 Pearl East Cir.
Boulder, Colorado 80301
Phone: 303.786.9200 Fax 303.786.8611

CIRCLE 79 ON READER SERVICE CARD.



Do you have an undocumented Macintosh tip you're willing to share? MacUser pays \$25 for every tip used, and the Tip of the Month earns \$100.

✉ Send your tip, together with your name, address, and phone number, to Tip Sheet, c/o MacUser, 950 Tower Lane, 18th Floor, Foster City, CA 94404.

You can also contribute tips electronically via Ziff-Net/Mac, the on-line service for MacUser. Send them to Gregory Wasson at 72511,36. Be sure to include your full name and mailing address along with the text of the tip.

Compiled by
Gregory Wasson

System 7

In January's Beating the System, page 207, Bob LeVitus describes a way to change the Finder with ResEdit so that generic PICT and TEXT files are opened by your favorite applications. Here's a similar way to change the System file so that screen snapshots are created in your favorite drawing program's native format:

1. Launch ResEdit, and open a *copy* of the System file (never the active System file).
2. Open the FKEY resource.
3. Open FKEY resource ID 3. Click on OK when warned about saving your changes uncompressed.
4. Choose Find ASCII from the Find menu.
5. Type **PICT** into the first text field of the window, and click on the Find Next button.
6. Close the window, and examine the highlighted string in the FKEY ID = 3 window.
7. Click on the down arrow, and examine the four-letter creator type for TeachText (txtt) directly under the boxed PICT string.
8. To find out the creator type of your drawing program, use ResEdit to open a document created by that application and choose Get File/Folder Info from the File menu. Copy

the four-letter creator string in the window that appears, and close that window.

9. Select the txtt string in the FKEY ID = 3 window, and paste.

10. Choose Save from the File menu, and quit ResEdit.

11. Move your old System file out of the System Folder, and replace it with the new one. Make sure you name the new file System.

12. Restart to activate your changes.

Now when you double-click on a document you've created by pressing Command-Shift-3, it's opened by the specified drawing program.

John Turpin
Lookout Mountain, GA

TeachText

Ever wonder how some of those little TeachText ReadMe files appear on the desktop as newspaper icons? It's really simple.

1. Launch ResEdit or a similar program that lets you alter the type/creator information of a file.

2. Choose Get File/Folder Info from the File menu (that's how it appears in ResEdit 2.1; your version may be different).

3. Choose the TeachText document file you

Tip of the Month

Canvas 3.0

With System 7, you don't have to publish an entire document; you can publish just a group of objects. This is useful in an unusual way: You can replicate a group of objects by publishing it and then subscribing to it in the same document. This is helpful, for instance, when you're laying out a bunch of business cards or tickets on a single page.

In Canvas 3.0, simply draw one card, select all the items in the card, and choose Create Publisher from the Edit menu. Then choose Subscribe from the Edit menu. Subscribe the same

number of times as you want duplicates of the card on the page.

To change the card, modify the original, double-click on the Publisher box around it (if your preferences indicate that the box should be visible), and click on the Send Edition Now button.

This is easier than editing one copy, deleting the others, replacing them with new copies, and then realigning them on the page, as you must do without publish-and-subscribe.

Wayne Folta
New Carrollton, MD

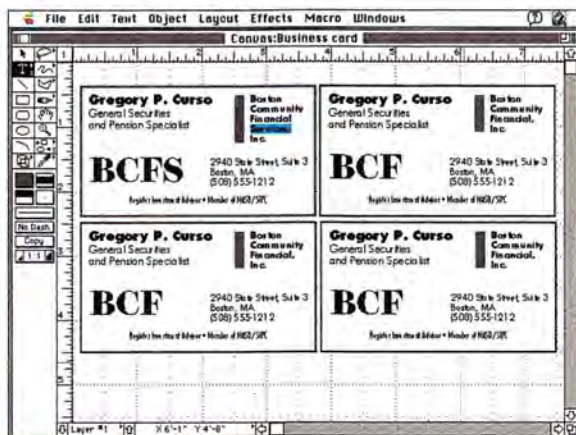


Figure A: Publish-and-subscribe isn't just for workgroups. In Canvas 3.0, you can use this System 7 feature to instantly update changes to duplicates of a graphic on the same page.

want represented by the newspaper icon. The file type of normal TeachText files is TEXT, and the creator string is txtt. Change the type to ttro, save your changes, and quit.

4. Close the folder that contains your file, and reopen it. There's the newspaper icon!

Matt Mick
Boston, MA

Microsoft Word 4.0

Most users of Word 4.0 are familiar with its Print Merge features, which allow you to generate form letters by using data exported as text files from database programs. But you aren't limited to using text files for your data document; you can also use Word documents formatted as tables in which each row is a record and each column is a field.

One advantage of this

method is that it lets you include graphics in your data document. For example, to include your scanned signature in documents to be sent by fax modem, put it into a table cell in your data document instead of pasting a copy into each file. Then set up the main document to be faxed as a print-merge document. Your signature will automatically be "scribbled" on each page.

Andrew Macrae
Toronto, Ontario
Canada

QuicKeys 2.1

Since the Trash under System 7 doesn't automatically empty at shutdown or restart as it did under System 6, several freeware and shareware utilities have arrived to automate the process. QuicKeys 2 can do this just as easily, however.

Just create a Menu/DA macro that selects Empty Trash from the Special menu in the Finder, and click on the Timer Options button to set the macro to be activated 0 seconds after your Macintosh starts.

If you have any applications in your Startup Items folder, you'll instead want to make a sequence in QuicKeys 2: First, set up a Menu/DA macro (look on the Define menu in the Sequences dialog box) that chooses the Finder from the Application menu in the upper right corner of the screen. Second, use the Menu/DA selection, on the Define menu, to choose Empty Trash from the Special menu. QuicKeys waits until everything in the Startup Items folder has been launched before it starts to execute any macros. [This QuicKeys macro is available in Library 5

(Scripts & Templates) of the ZiffNet/Mac Download & Support Forum; the filename is QTRASH.CPT. — Ed.]

Joseph Holmes
New York, NY

System 7 Finder

Sometimes when I'm copying lots of files onto various disks or into many folders, I find that I can't keep track of which of my files I've already copied and which remain. Here's an easier way to keep track of them.

Use the Labels control panel to create a new category — say, Copied — in a bright color. Then go to the folder with the files you want to copy, and pick out and highlight the ones you'll copy first, just as you would before dragging them to the target disk or folder. But before you drag them, go to the

The AppleShare Print Server should have been...

Print Central the most flexible, complete network print server on the market today. Whether you share one laser printer or a series of PostScript devices, Print Central is the product for you. Print Central provides the means for defining up to eight Chooser selectable print queues. Queued jobs can quickly be prioritized or placed on hold, or sent to a different queue. Each queue can be sent to one or several printers on a first available basis. Print Central print queues are never busy, imagine never waiting for a printer again!

Print Central maintains an accurate record of each job processed; the report can be printed in a variety of sorted formats. Security is an important aspect in a network of any size. Print Central can 'hide' printers and the administrator can define an authorized 'user list'. Included is the ability to either status or control the server from any Mac on the network (remote control). Print Central works with all applications and PostScript equipment including laser and color printers, imagesetters and slide recorders. Print Central is available from your local dealer or directly from Compumation. Stop waiting for your printers, stop your printers from waiting for the next job. Call 1-800-SPOOLER for more information or to get your copy today!

Working with scanned or high resolution images? **Color Central** is the OPI/DCS Image Print Server, an enhanced version of Print Central. Color Central permits you to place a low resolution image in a page layout, while the high resolution or separated version is stored at the print server. When the Mac prints to Color Central it is freed in seconds rather than the hours associated with printing high resolution graphics. When the job is sent to the printer, Color Central automatically inserts the images on the fly!

It should have been fast & compatible...

Photoshop (2 Meg Image)	27% faster!
Xpress (2 Pages)	12% faster!
PageMaker	AppleShare doesn't work with PageMaker!!

It should have been full featured...

	Print Central	Apple PS
Runs on a Macintosh	✓	✓
Printer Load Balancing	✓	
Works with Large Graphics	✓	
Authorized User List	✓	
Remote Status & Control	✓	
Configures Printer	✓	
Works with AppleShare 3.0	✓	✓

Print Central

what the AppleShare Print Server should have been!

Compumation Inc.

(814) 238-2120 fax 234-6864 AppleLink: COMPUMATION

All trademarks are the property of their respective owners

**1-800
SPOOLER**

CIRCLE 249 ON READER SERVICE CARD.

Labels menu and choose the new Copied category. Now copy the files. Repeat the process for each set of files you need to copy. It's easy to see which files have already been

copied, by either the color or the label name. Of course you won't want to use this method if you need to preserve the labels the files already have. But if you don't regularly use the

Labels feature, the Copied label can keep track of the files that have been backed up onto a floppy.

Joseph Holmes
New York, NY

Adobe Type Reunion

Adobe Type Reunion is a great utility for uncluttering Font menus, but it tends to slow down menus in many programs and some programs are

Tips from the Experts

WordPerfect

WordPerfect, the undisputed DOS word-processing champ, has been making waves recently on the Mac side too (it was the first word processor to support QuickTime). Here are a couple of hot tips from the WordPerfect team:

Graphic Rulers. WordPerfect's drawing environment doesn't provide a ruler, but there are a couple of easy workarounds. You can use a screen-capture utility such as Capture to grab the ruler in the main document window and paste it into the drawing window (see Figure B). Save the ruler in the Scrapbook for future use. The other option is to leave an untitled document open with the ruler displayed. Open a second document and then open the drawing window. Move the document window down until the ruler in the first untitled document becomes visible.

Quick Kerns. Kerning is an option of the Layout menu's Line command. It brings up a dialog box in which you can enter kerning values, but a quick kerning method is to use the F1 and F2 keys. Place

the insertion point between the two letters you want to kern. Press Shift-F1 to move letters together 1 point or Shift-F2 to move them apart 1 point. You'll see the change in your document immediately.

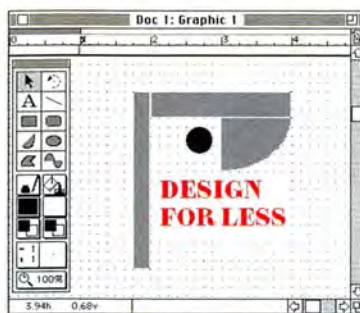


Figure B:
WordPerfect's
drawing window
has no ruler, but
you can add one
by using a
couple of tricks.



Small business accounting for those who don't plan to stay that way.

MultiLedger™ is the small business accounting package for those who think on a slightly grander scale. Yes, it contains all of the major accounting functions (General Ledger, A/R, A/P, and Inventory) plus many management reports in one integrated program. And as one major magazine wrote, "It's the most elegant, usable, and Mac-like of all the packages."

But that, as they say, is only the beginning. You may want to manage multiple departments. Or add a Payroll. With MultiLedger, growth is built directly into the plans.

One more thing. MultiLedger is also the only package of its kind with a multiuser version available, for that moment when business goes so well that you actually need *more than one person* doing the books.

Call us now at (800) 444-9922 for a free demo disk.

MultiLedger • Payroll

Suggested Retail Price: MultiLedger - \$395; Payroll - \$295; MultiLedger MultiUser Version - \$695.
© 1991 CheckMark Software 1520 E. Mulberry Suite 200 Ft. Collins, CO 80524. Fax: (303) 484-0429.

CIRCLE 135 ON READER SERVICE CARD.

even incompatible with it. You can hold down the Shift key upon launching a program to

disable ATR temporarily for one session, but there is a way to permanently disable ATR

for specific programs.

ATR checks a program's resource fork to see if it has an ATR resource with ID -1 containing a single zero byte (00). If it finds such a resource, it disables itself for that program, as it would if you had held down the Shift key.

Just use ResEdit to install that resource in all programs and DAs that don't need ATR, and you'll find that their menus are much faster!

Adobe itself uses this trick in Adobe Illustrator (see Figure 1), so you can copy and paste the resource between Illustrator and other applications. As always when working with ResEdit, use only copies of your programs; you should never modify your master disks.

Jean-Claude Siegrist
Summit Park, UT

Telecommunications

While on-line, you may need to leave your computer for a period of time. But it's time-consuming to log off and a hassle to log on again later. On the other hand, if you don't log off, you'll be billed for the time — no small matter on commercial services such as CompuServe.

But here's a solution: Almost every on-line service has a free help center you can go to and browse in as long as you like without paying. So if you must leave your computer for a few minutes during an on-line session, just pop over to the help center.

You won't be billed for the time that you spend there, and you won't need to log on again later.

Daniel Max P. Drucker
Port Washington, NY

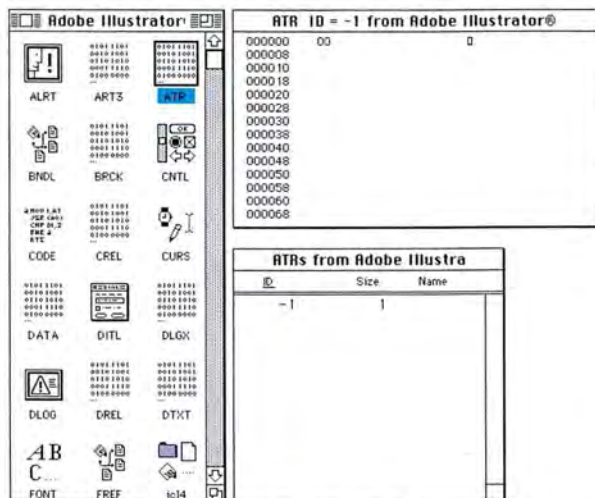


Figure 1: You can patch applications with ResEdit so that they ignore Adobe Type Reunion. Now you don't have to remember to hold that Shift key down.



The Perfect Security Blanket... Bundle-Up With NightWatch II & FolderBolt

NightWatch II and FolderBolt wrap your Macintosh in a blanket of protection. Alone, or in combination, they're the strongest security in the industry.

New NightWatch II provides ironclad hard disk protection while you're away, and hot spot screen security while you work. It includes unique user time-of-day or day-of-week restrictions, write-protection and much, much more. With NightWatch II's three state-of-the-art protection options and master key capability, we've really left the competition feeling insecure.

FolderBolt is powerful folder level protection that's fully integrated into the desktop. Simply double-click a folder and it prompts you for a password! Create completely locked, read-only (for application protection), or one-way drop folders. You can even lock the running System Folder.

Both NightWatch II and FolderBolt are System 7 savvy, and include activity logging and administrative override for forgotten passwords. Hierarchical signatures make them the perfect site license solution. So bundle-up in the perfect security blanket. With protection like this, you'll sleep like a baby.

Kent•Marsh Ltd.

The Macintosh® Security Experts



Kent Marsh Building
3260 Sul Ross, Houston TX 77098
Sales: (800) 325-3587 Fax: (713) 522-8965
Main: (713) 522-LOCK

CIRCLE 36 ON READER SERVICE CARD.

S U P E R D T E C H N O L O G Y

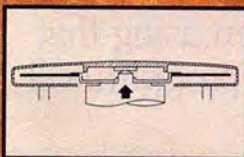
4 ways to tell the
real thing from
fool's gold.

In 1983 we introduced the world to the Gold Standard of Technology. Others have followed but never equalled our single-minded pursuit of superior floppy disk performance. And now, 8 years later, we're pleased to present the Maxell Super RD MF2-HD. Don't be fooled by anything less.

*1. Look for a better
shutter system.*



Our new Dual Interlocking Flex Shutter (pat. pending) not only ensures ultra-smooth openings and closings, but a virtually airtight internal floppy disk environment. And our unique Dual Interlocking mechanism greatly reduces the chance that the shutter will be opened or damaged should you drop the disk.



*2. Look for a better
shell material.*

Our composite shell employs a highly flexible material that allows constant contact between the

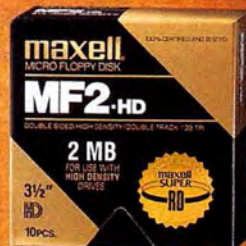
floppy's magnetic disk and your computer's drive head. So no matter what the individual characteristics of your drive unit, you get maximum data read/write accuracy.

*3. Look for enhanced
magnetic particle
performance.*



The Maxell HE Magnetic Particles used in the SUPER RD MF2-HD offer superior signal output stability and a significant improvement in the signal to noise ratio. Which ensures every disk will generate a full power signal and enhanced compatibility between machines.

*4. Look for the
name Maxell.*



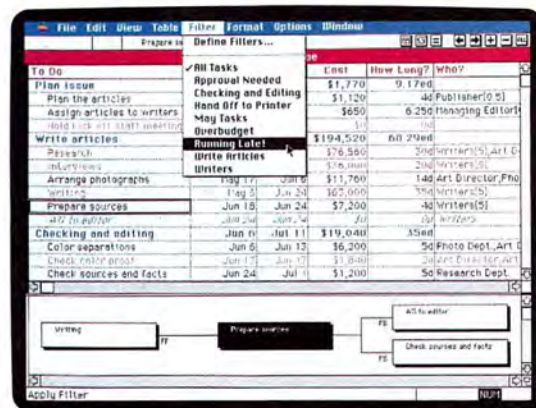
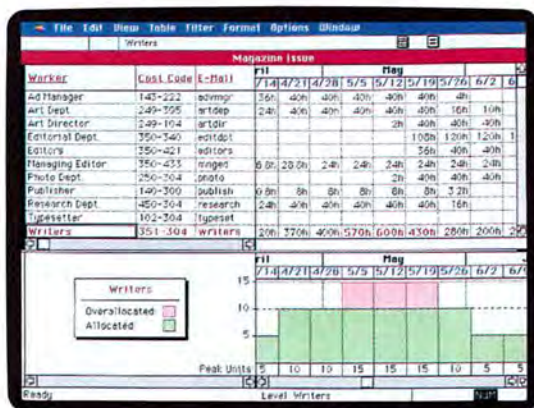
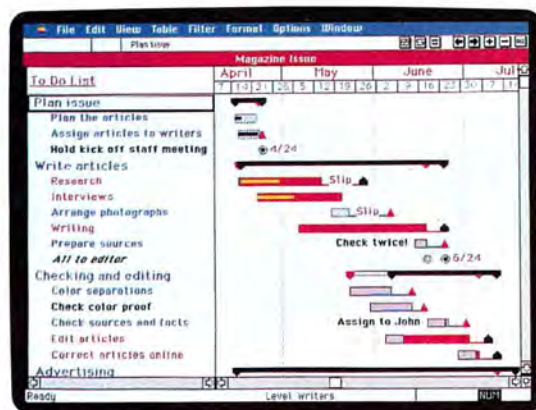
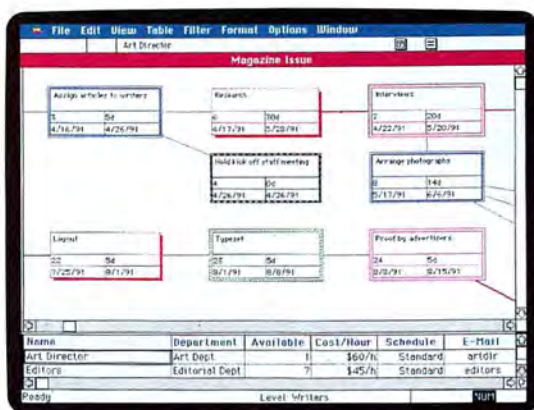
One name says it all. Reliability. Innovation. Leadership. The Gold Standard. Only from Maxell.



maxell
THE GOLD STANDARD

CIRCLE 80 ON READER SERVICE CARD.

Before you start your next project, check your options.



New Microsoft® Project for the Macintosh® lets you enter and view your data just about any way you choose. Customize reports to your liking. And schedule resources across multiple projects with ease.

But see for yourself. Call (800) 541-1261, Dept. Z24, to order your own \$9.95* working model. Then using that other project management program will be (whew!) optional.

Microsoft®



Questions, anyone? Here's where to get answers from the experts. Bob LeVitus is the author of the best-selling Dr. Macintosh, 2nd edition. Andy Ihnatko is a top breeder of champion show poodles. Together, they're ready to answer your questions about everything Macintosh.

✉ Write to Help Folder, c/o MacUser, 950 Tower Lane, 18th Floor, Foster City, CA 94404.

Don't want to wait for an answer? Post your question on ZiffNet/Mac, MacUser's on-line service, and get a reply from Bob, Andy, or one of the other MacUser experts. See the masthead in this issue for instructions on how to sign up.

By Bob LeVitus and Andy Ihnatko

Speeding Up System 7

Q. I have a IIci with 8 megabytes of RAM and an 80-megabyte hard disk. I recently upgraded to System 7 and find it quite a bit slower than System 6.0.5. Specifically, opening windows in the Finder seems to take longer than it used to. Is there anything I can do to soup up System 7's performance without spending a ton of money?

Max Vizsla
Austin, TX

Bob: Right as we go to press, Apple has released its System 7 Tune-Up. I haven't had a chance to test it yet, but Apple says that using it will improve memory management, fix some minor bugs, and generally speed things up. It's being distributed free, so it's probably worth trying. In the meantime, here are some techniques I have tested.

First, make sure the Calculate Folder Sizes option in the Views control panel is turned off. Calculating Folder Sizes slows the Finder to a crawl.

Second, try increasing the size of your disk cache in the Memory control panel in System 7 and in the General control panel in System 6. Chances are it's set to 256K right now, which is the default for an 8-megabyte machine. Try increasing it to at least 384K, and then reboot. The speed improvement is subtle, so if you don't notice that your Mac runs faster after a day or so, return to the control panel, increase the setting some more, and reboot. If you don't notice a difference by the time you get to 768K or 1,024K, return to the control panel and set it back to the default — there's no sense in wasting perfectly good RAM on the cache if you don't see any improvement.

Finally, you may have noticed that whenever you double-click on an icon in the Finder, you see animated zooming rectangles before it opens. These are called ZoomRects, and they slow the Finder down quite a bit. Luckily, if you're handy with ResEdit, you can turn ZoomRects off. (Of course, the standard ResEdit disclaimer applies. In case you've forgotten, here it is again: *ResEdit can do lots of really cool stuff, but it can also destroy your files. Never use ResEdit on a master or original file; always work on a copy.*) Here's how to turn ZoomRects off:

1. Open a copy of the Finder with ResEdit 2.1.
2. Open the CODE resource.
3. Open CODE ID = 4 (you'll need to decompress it).
4. Select Find Hex on the Find menu, and then look for 4E56 FFE0 48E7 1F38 (see Figure 1).
5. Select these bytes.
6. Replace them with 205F 700A DEC0 4ED0.

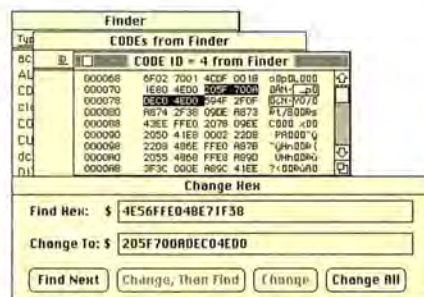


Figure 1: You can get rid of pesky ZoomRects (and speed up System 7) by using ResEdit.

* ... But Were Afraid to Ask

Our society has a perverse fascination with complicated solutions, ignoring the advantages of simplicity. So send us a simple question. To protect your identity, we'll inject some class into Help Folder by substituting the name of a Poet Laureate of England.

Q. I have a question regarding getting a PowerBook through airport security. After inspection, is it safe to just shut the power off so I can hustle onto my plane, or will I damage my new toy?

Colley Cibber, 1730
England

Andy: First, congratulations on your common sense. You simply shouldn't trust your data to airport-security machines. Always ask for hand inspection of disks, hard drives, and laptops; the airport-security people will just have you power up the hardware to prove that it

actually works and wave you on through.

Now then. Whether you've got a PowerBook, a Portable, or even an old Mac Plus, you should *never* turn off a Mac without doing a shutdown from the Finder first — individual files and even the integrity of the whole hard disk may become corrupted. At best, nothing will happen, but at worst, the data structures recording important details about the disk's data will be completely hosed. You'll be in deep yogurt.

So don't just switch the thing off. If you don't have time to shut down and power off properly before boarding, the next safest thing is to switch into Sleep mode. The Official Word from Cupertino is that it's not safe to move a sleeping PowerBook, because you might crash the hard drive. In reality, it's highly unlikely that you'll do any damage to it unless you're one of the Flying Karamazov Brothers.

7. Save the copy of the Finder, and close ResEdit.

8. Move the modified Finder into your System Folder, and reboot. (You can boot from a floppy to perform this step.)

Andy: The best way to soup up System 7's performance is to switch back to System 6.0.5. But if Balloon Help gives you a tingly sensation that you just can't live without, consider leaving your Finder windows in Icon view. In all other modes, the Finder has to do a tediously long sort (By Name, By Size, By God When Will This End So I Can Get On with My Life).

Upgrade or Buy?

Q. I have a Mac Plus with 4 megabytes of RAM and a 45-megabyte hard disk. I've been very lippy with it and am considering upgrading it. I would like to know your thoughts on installing an accelerator versus selling the Plus and buying a faster Mac.

Don F. Amos
Billings, MT

Bob: I think it's time to get rid of the Plus. The Plus is notorious for having a flaky power supply; installing an accelerator stresses it even further. Also, your Plus is several years old and probably has some other components that are getting old.

Another problem is that some applications, INITs, and control panels that work fine on stock Macs may conflict with third-party accelerators.

Andy: I've said it before, and I'll say it again: The Mac Plus' power supply is fundamentally wonky, and having any kind of daughterboard installed is not a spiffy idea unless the soft real-estate market has caused you to look upon your unsold-but-heavily-insured beach house with vision unimpaired by moral compunction.

But just in case you're sentimentally attached to your Macintosh Plus (I know I'd be

heartbroken if I lost the Batman bumper stickers on mine) and are determined to go ahead with an upgrade, I recommend the Brainstorm Accelerator. Instead of making you stick in a daughterboard, Brainstorm replaces your motherboard's 68000 CPU and timing chip with special souped-up versions that more than double system performance. It's not as sexy as a 68030 upgrade, but the price — borderline shocking at 249 clams — can't be beat. The upgrade puts some extra demands on the power supply, but it's not nearly as taxing as a daughterboard upgrade. Brainstorm is at 1145 Terra Bella Avenue, Mountain View, CA 94043; (415) 964-2131.

Long ADB & Far Away

Q. I'd like to hear any advice you may have on how to make a long-distance (approximately 100 feet) connection between my Mac II and the keyboard and mouse. I use the Mac II in my home office and would like to be able to hook up the system so the kids can play games on the big-screen TV in my living room.

Ed Hoel
Chapel Hill, NC

Andy: At this point, I lean back and reflect on the genius of "I Love Lucy." Whenever Lucy's latest harebrained scheme went up in smoke, Ricky reeled off this long speech in rapid Spanish — "barrupatabuppadaruppata" and so forth — to no one in particular. But as I have neither the original text nor the English translation handy, you'll have to be content with a simple "What, are you nuts?" Haven't your kids ever heard of Super Nintendo?

But they don't pay me to belittle the readers. Answer: You can extend your ADB (Apple Desktop Bus) chain by a truly absurd amount by using S-video cables instead of ADB cables. S-video cables,

found in your better home-electronics stores, are typically used to hook up absurdly expensive laserdisc players and VCRs to even-more-expensive televisions, but the wiring and connectors are identical to those of ADB cables. I can personally vouch for a 25-foot cable working reliably and some daredevil on ZiffNet/Mac has reported 40-foot cables working properly, but I doubt that you're going to get anywhere near 100 feet with this or any other solution.

More food for thought: Apple designed ADB under the assumption that the length of the entire chain (cables, devices, the whole shebang) wouldn't exceed five meters, and some devices (trackballs especially) are wonky enough on a short ADB chain, so don't be surprised if at some point, this cabling system ceases to work. Oh, and cable capacitance shouldn't exceed 100 picofarads per meter. I'm sure the guys at the video store will have all that information handy. . . . *Not!!!*

Cheap Speed

Q. I'm running a Mac IIci with a 13-inch color monitor, and I'm looking for an inexpensive way to tweak performance — when scrolling through complex WordPerfect 2.03 documents, for example. I've considered putting in a cache card, but I've also heard that putting RAM into the secondary RAM bank would increase the speed of scrolling through WordPerfect documents that contain graphics. Because more RAM would always be helpful (between the system and UltraPaint, I'm already using slow virtual memory), this seems like a tempting alternative. Which option would increase performance more?

Also, a friend of mine just upgraded his SE from 1 to 4 megabytes. I know that my computer requires faster

memory, but even slower chips are faster than virtual memory. Would awful, nasty things happen if I tried using slow RAM in my IIci?

Scott Patlin
Ithaca, NY

Andy: Putting in slow SIMMs won't reduce your IIci to a puddle of bubbling plastic slag, but it will undoubtedly result in wheelbarrows full of system errors. But don't rule out using SIMMs from an SE; since the Dark Ages of the mid-to-late '80s, SIMMs have been so cheap that almost all memory is rated at 80 nanoseconds, so chances are excellent that those old SIMMs will work fine. If you see an 80 printed somewhere on one of the memory chips, you're probably golden.

Now about speed. As clergypersons of the top five religions will tell you, happiness of any real magnitude involves either spending money or making a life-style change, and it is ever thus when seeking speed.

Beginning with stuff that costs money, then. For most Macs, the IIci particularly, a cache card gives you the most bang for the buck. For just a few hundred dollars, the real speed of your IIci can go up by about a third, on average. A cache card is a card with special, wicked-fast RAM on it — information can move through it about four times as fast as through the RAM on the motherboard — and the card uses this fast RAM to hold whatever information the CPU has just called up from memory. So, the next time the CPU asks for that same information, instead of reading it from the slow, poky 80-nanosecond RAM that makes up your regular system memory, it comes in at warp 9.2 from the 20-nanosecond RAM on the cache card. The more expensive the cache card, the more cache memory you get.

In theory, more cache

HIGH RESOLUTION



TOP-RATED SPEED



135 FONTS

CIRCLE 178 ON READER SERVICE CARD.

POWER TOOLS HELP FOLDER

memory equals more speed, but in practice, the jump in speed from a 64K cache to a 256K cache isn't all that impressive, considering the extra expense.

Cache cards are available for most Macs and are already built in to some. If you bought your Ili within the past six months, chances are it came with a cache card already installed. Apple originally intended the card as an add-on, but it proved to be so cheap and effective that it decided just to give 'em away with the system, causing several third-party cache-card manufacturers to go over and egg Sculley's house.

You touched on another way to speed things up, which is to add more RAM. Two errors, though, one small and one large: More memory won't inherently speed up your Mac and certainly won't do anything specifically to enhance QuickDraw. It's just that the more memory your applications have to play with, the fewer times they have to run all the way to the hard disk for data.


But the monumental error you've made is relying on virtual memory for your day-to-day work. Virtual memory is like that wimpy plastic spare tire you get with a new car these days. Yes, it functions like the real thing, but it's slow, sloppy, and inconvenient and it makes you look like a megadweeb. Virtual memory has its place, mind you — when you find yourself in a unique situation such as having to have PageMaker, Excel, HyperCard, and Illustrator running simultaneously or when you're working on grotesquely huge documents such as full-color scanned images. But virtual memory's ability to slow your Mac down to a crawl borders on the superhuman. Maxing out your Ili with 1-megabyte SIMMs doesn't cost all that much, and you'll

notice a significant improvement in speed with 8 megabytes of real RAM!

OK, what *can* you do, short of dropping a couple of thousand on an accelerator board (you said "inexpensive," remember)? Much as car enthusiasts pull their carbs or rail their hemis or adjust whatever it is they diddle with to get their cars to run more efficiently, Mac owners can make small adjustments to their software to help eliminate some bottlenecks.

First, allocate more memory to important applications by changing the number in the application's Get Info box. There's always a bare-minimum amount of memory an app needs to run, but bumping that number up allows the application to keep more of itself in memory and less of itself on-disk when running under System 7 or MultiFinder. My rule of thumb is that when you increase the memory allocated to an application by 15 percent more than the minimum, you begin to see a speed improvement — 25 percent gets you the most bang for the buck, but increasing it by more than 30 percent probably wastes RAM.

Tweak the RAM cache, as Bob explained in his answer to Max Vizsla. Another rule of thumb: Start with a setting of 256K, and add another 32K for every megabyte of RAM you have over 2 megabytes. Again, a good way to figure out the best setting is good old trial and error, but this little formula has worked for me in practice.

You can also greatly enhance scrolling speed and even (to a lesser extent) system performance by dropping down to a less impressive video mode. If you do most of your work in 256-color mode (or, God help you, 24-bit mode), you'll see a vast improvement if you switch to simple black-and-white mode. 

HAVING TROUBLE FINDING SPACE ON YOUR HARD DISK?

STUFFIT SPACESAVER

SpaceSaver™ is the all-new, automatic way to save disk space. There's no extra effort involved. And tests prove SpaceSaver frees up space faster than anything else. Call Aladdin Systems at (408) 761-6200 for more details.

StuffIt and StuffIt SpaceSaver are trademarks of Aladdin Systems, Inc.

CIRCLE 183 ON READER SERVICE CARD.

SHARE AND SHARE ALIKE.



THE BLP IIS. NOW WITH TWO PAPER TRAYS!

It's easy to see why so many people are attached to the BLP IIS. With an 8 ppm (page-per-minute) engine, high speed processor, a new second paper tray, and the best features of any PostScript® printer in its class, the BLP™ IIS is the perfect addition for any office needing a networkable printer.

Printing Made Easy.

To make office printing over your network simple, we've added several new and exciting features. Included is a second paper tray giving you increased paper capacity and unsurpassed paper handling capabilities. Now you can select paper from one of two paper trays right from your Macintosh®. Plus, we've boosted the printer's performance by including four megabytes of RAM standard, so you can print the most complex graphics with ease.

For graphics enthusiasts, the BLP IIS offers edge-to-edge printing that lets you print right to the paper's edge for super-big banners, mastheads, spreadsheets, and more.

The BLP IIS also has a straight-through paper path, so you can print everything from envelopes and labels, to your custom stationery. Wrinkle-free.

You don't have to be a Macintosh user to benefit from the power of the BLP IIS, either. The BLP IIS offers optional PC support, HP Emulation, and Diablo compatibility, so no one is left out.

Dealer or Direct. 800-422-7777, extension 607.

The BLP IIS is available from your Authorized GCC Dealer or directly from GCC. Call toll-free 800-422-7777, extension 607, for the name of the dealer nearest you or to place your order directly with us. The BLP IIS...the one PostScript printer that pleases everyone.



GCC
TECHNOLOGIES
Peripherals With Vision™

*"Who's really
benefiting from all
the new alliances?"*

MANY of the most important channel questions facing the PC industry will be discussed at PIP '92. The Seventh Annual *Partners In Progress* Conference sponsored by PC WEEK will be held this year at the luxurious LaCosta Resort in Carlsbad, California between May 3-5.

*"Will the heavy hitters ever
be able to play ball again?"*

At PIP '92 there will be no sales pitches. Just straight, relevant, off-the-record discussion of the key issues and questions that are affecting microcomputer channel business and profits. Over forty industry speakers — like Ross Cooley from Compaq, Mort Rosenthal of Corporate Software, Cliff Jenks of Apple, Nathan Morton from CompUSA and Rick Inatome from InaCom, among many others — will tackle industry issues and field your toughest questions.

*"Excuse me, sir.
How would you like
a loofa salt glo?"*

This has been a remarkable year in the PC industry and this year's PIP Conference will be an equally remarkable gathering. The cost is just \$695. Register before April 15 and you'll get a \$100 early bird discount. Call Kelly Hale at 800-451-1032, ext. 3757 for details.

PIP92

Sponsored by PC WEEK

This Month on ZiffNet/Mac

ZMAC UTILITY

Most PowerBook users have experienced the frustration of temporarily losing their cursor on-screen. The lag between moving the trackball and seeing the cursor is especially pronounced when you're running memory-hungry applications on PowerBooks that have minimal RAM. It can take several swipes of the trackball before you can spot your cursor.

A brand-new utility, **CursorBeacon**, neatly solves this problem by pinpointing your cursor's position with a visual target. All you have to do is type a predefined keyboard command equivalent (such as Command-Shift-7), and **CursorBeacon** hones in on your cursor with the image of a bull's-eye. **CursorBeacon** is a System 7 extension, and you can define the keyboard command equivalent. **CursorBeacon** was developed by Atlanta-based programmer Bill Monk, author of the popular **Alias Assassin**. **CursorBeacon** is available exclusively on ZiffNet/Mac. The filename is **CURBEA.CPT**, and it can be downloaded from the MacUser Forum Library 3 (Utilities).

By Ben Templin

Expert Answers for Color Questions

MacUser Labs Director Rik Myslewski will be on-line this month in the MacUser Forum to answer the 16.8-million-color question, **What Color Is Your Desktop?** Myslewski directed this month's look at color on the Mac. If he doesn't have the answer to your color question, he knows who does. Look in the MacUser Forum this month for the message thread entitled "Color & Macs," in message section 5 (Labs & Networkshop) of the MacUser Forum (GO MACUSER).

CIM: Don't Get Boxed In

When downloading multiple files with the CIM (CompuServe Information Manager), an annoying Save dialog box asks you for a name for each file you want to retrieve. An undocumented feature lets you avoid the Save dialog box when you want to download multiple files from a forum library. Hold down the Option key, and click in the check box in the file-list window. The first file will display the Save dialog box, but every other file will bypass the dialog box and use the given filename as a default.

About CIM: CIM is the graphical interface for ZiffNet/Mac. CIM automatically uses its proprietary Quick-B protocol — the fastest, most efficient transfer method available for CompuServe. If you don't have a copy of CIM, you can download a custom version from ZiffNet/Mac. Select About ZiffNet/Mac at the top level of the service, and choose item 6 (Download ZiffNet/Mac CIM).

Recent Uploads

QuickTime, Apple's new video standard, has sparked an enormous on-line interest in video. Here's a batch of new applications, information stacks, and QuickTime movies you can download from ZiffNet/Mac's Download & Support Forum (GO DOWNTech). The CompuServe filenames are in parentheses.

Popcorn (POPCOR.CPT), from Aladdin Systems, lets you view and edit QuickTime movies.

PanaStack (PANAST.CPT), from Panasonic, is a HyperCard guide for the use of video, VCRs, and still-image video with the Mac II family.

VideoBeep (VIDEOB.CPT) is a System 7 extension that lets you display the QuickTime movie of your choice whenever your Macintosh beeps.

Morning Star (STAR.CPT), from BMUG's public-domain CD-ROM disc called TV-ROM, is a QuickTime animation of a rotating spiked ball.

Plane Fly By (FLYBY.CPT), from BMUG's public-domain TV-ROM disc, is a spiffy QuickTime animation of a twin-engine jet.

Plane from Behind (PLANE.CPT), from BMUG's public-domain TV-ROM disc, is a QuickTime rear-view animation of a flying plane moving from side to side.

Quadra start-up sound (QUADSD.CPT), from BMUG's public-domain TV-ROM disc, provides the soothing Quadra and PowerBook startup sound in QuickTime format.

Time Warp (WARP.CPT), from BMUG's public-domain TV-ROM disc, is a QuickTime movie of a clock being warped very quickly. ⌘

ZiffNet/Mac Survey



In a recent ZiffNet/Mac survey, we asked 500 ZiffNet/Mac users which computer they would buy if they were going to make their purchase today. Here are the results. Type GO ZMC:SURVEY to participate in the next ZiffNet/Mac survey.



Direct Line

For many of you, mail order is your primary means of purchasing Macintosh products and services. That's why MacUser has put together the following special section.

It's what you've been demanding — a convenient place to quickly find the products you need from the vendors you want to buy from. MacUser's Direct Line to products is just one more reason to turn to MacUser for relevant information aimed at the serious user.



Mac Quadra System

Quadra 700, 20mb RAM, 425mb Hard Drive, 1.44mb Apple FDHD, Mouse, Extended Keyboard, 16" ColorPage T-16 Monitor, Futura SX Color Card, 832x624 resolution, 24-Bit Accelerated Color, Pan and Zoom, and Virtual Screens.

Only ... \$8,399

Mac IICI System

Macintosh IICI, 5mb RAM, 105mb HD, 1.44mb Apple FDHD, mouse, extended keyboard, 14" color monitor, 24 bit accelerated color w/ pan & zoom/virtual screens.

Super Special \$3969

IICI 3/40 (monitor/keyboard purchase required) \$1989
IICI 5/40 (monitor/keyboard purchase required) \$2849
Quadra 900 \$5449

Do More and See More Today! Increase your productivity with E-Machines 16-inch Monitors



ColorPage T-16

Color Displays

ColorPage T16 II \$1595
ColorPage E16 \$995
E-Machines TX16 \$1750
E-Machines T19/8 Bit \$2382

Color Interface Cards

Futura EX **In Stock! Call**
24-bit Accelerated NuBus interface card for the Apple 12 and 13-inch displays. ColorPage E16, and Mac compatible displays with 640 x 480 resolutions. And like all E-Machines cards: On board acceleration, virtual screens, and pan and zoom.

ColorPage T-16 Quadra Compatible!

E-Machines ColorPage T16 16-inch display. Works with the Macintosh Quadra Built in video! Displays 832x624 resolution at 72dpi. The T-16 Judged Best 3 years running by MacUser Magazine.

Incredible Price \$1299

Double Color Board for the T16 \$359
Futura SX/8 \$699
Futura SX \$899
Futura MX \$1399
ColorLink EX/T \$695
ColorLink SX/T \$1050
E-Machines TXSi and T19/Si \$949
E-Machines TXSE30/8 \$949



E-MACHINES



\$16

Two Pack

JetFill Ink Refills

The original Ink Refill is here for you today. JetFill Ink refills are available in 6 colors and come in economical two-packs. Also, JetFill refills are made of recycled or recyclable materials. And for only \$16 per refill and overnight shipping for only \$6 more, you can't go wrong!

Extras only from MacSource

Every Mac we sell includes Golden Triangle's DiskMakers software. Also, order this month, and get Golden Triangle's DiskSpace (when it's released) Free (a \$100 value), which will double the capacity of any hard drive! Only from MacSource.

All E-Machines In Stock
Call today for Current Prices

CALL TOLL FREE 1-800-925-2622

MacSource

MacSource™ • 7801 North Lamar, Suite E-190 • Austin, Texas 78752 • (800) 925-2622 • FAX: (512) 467-2642

Technical Support: 1-800-723-2622 • International Quotes: (512) 467-6871 • Prices Subject to Change without notice.

© 1991 MarSpec, Inc. MacSource is a trademark of MarSpec, Inc. Apple and Macintosh are trademarks of Apple Computer Corporation. Group Sales Photo © 1991 PR Dunn Photography. All other trademarks are property of their respective holders. E-Machines, The E-Machines Logo, and ColorPage are trademarks of E-Machines.



Accounting	Chipsoft Mac In Tax Final.....54
	Chipsoft Mac In Tax State.....39
	Computer Assoc. Simply Accounting.....109
	Intuit Quicken v3.0.....39
	Meca Managing Your Money v4.0.....95
	Reality Wealth Builder.....89
	Teleware M.Y.O.B. v2.1.....135
Business Graphics	Adobe Photoshop v2.0 w/ATM.....529
	Aldus Freehand v3.1.....369
	Aldus Persuasion v4.2.....489
	Computer Assoc. Cricket Graph v.1.3.....79
	Desktop DrawArt Clip Libraries.....45
	Metro ImageBase Electronic Clip Art.....85
	Microsoft PowerPoint 2.01.....239
	Super Mac Pixel Paint Pro v2.1.....389
	Super Mac Pixel Paint v2.1.....139
	Symantec More v 3.1.....235
	T/Maker ClickArt Color Graphics for Pres 95.....569
CAD	Clariscad 2.0.....529
	Generic Cad for Mac.....109
	American Small Bus DesignCAD 2D/3D.....149
	MacroMind ModelShop II.....499
	MacroMind Swivel 3D Professional.....389
	StrataVISION 3d 2.0.....569
Communications	CE Software QuickMail 2.5 (5 users).....229
	DaynaTalk for Mac.....89
	Farallon Phonenet Connectors.....23
	Farallon Timbuktu/Remote v3.0.....119
	Carbon Copy for the Mac v2.0.....56
	Microsoft Mail 3.0 (server).....239
	Sikka FlashCard PC.....149
	Sikka MacTops v3.1.....179
	Software Ventures Microphone II 4.0.....99
	Hayes Smartcomm II Mac.....80
Database	Acus 4th Dimension v2.2.....479
	AEC FastTrack Resource.....139
	After Hours TouchBASE v2.0.....74
	Microsoft File v2.0.....119
	Ceres Inspiration 3.0.....149
	Clariscad FileMaker Pro.....189
	FileBase + Mac v2.01.....269
	ProVue Development Panorama II v2.01.....229
	Odesta Double Helix 3.5.....388
	Baseline Database v1.5.....61
Desktop Publishing	Adobe Type Manager v2.0.....58
	Adobe TypeSet 1, 2 or TypeAlign.....38
	Adobe TypeSet 3.....119
	Adobe Type Manager Plus Pack.....119
	Aldus PageMaker 4.02.....485
	Atsys EPS Exchange.....89
	Atsys Fontographer 3.3.....265
	Atsys Metamorphosis Pro 2.0.....89
	Bitstream Font Packs 1ar 2.....55
	Bitstream Font Packs 3ar 4.....95
	Broderbund PrintShop 1.3.....33
	Broderbund TypeStyle 2.0 w/ATM.....109
	Frame Tech. FrameMaker 3.0.....539
	Quark XPress 3.0.....515
	Casady & Greene Filants True Type Set 4.....55
	Adobe Fonts # 1 thru #230.....Call
	Spinnaker Certificate Maker.....23
	TimeWorks Publish-it Easy.....129
	Xerox Ventura Publisher.....435
Home/Recreation	Broderbund Kidd Pix.....33
	Broderbund Sim Ant.....33
	Broderbund Sim City.....27
	Broderbund Playroom v2.0.....27
	Broderbund Print Shop.....34
	Broderbund Where in the USA.....56
	Broderbund Where in Time.....56
	Electronics Arts P.C. & A Golf.....34
	Centron Software Casino Master Deluxe.....45
	Microsoft Flight Simulator v4.0.....35
	Spectrum Tetris.....25
Integrated	Lotus Works.....159
	Microsoft Office.....449
	Microsoft Works v2.0.....149
	SuperOffice.....249
	Symantec Greatworks.....189
Multimedia	Articulate Voice II w/ Desktop Mike.....599
	Articulate Voice Impact Pro.....199
	Canon XAPShop Still Video Imaging Kit.....899
	CD tech Multimedia Handisc.....435
	Clariscad HyperCard 2.1 Development Kit.....149
	Digital Vision Computer Eyes.....365
	Gold Disk Animation Works.....125
	MacRecorder Sound System 2.0.....174
	MacRecorder Voice Digitizer.....97
	MacroMind Director 3.0.....599
	MacroMind Magic.....219
	MacroMind SwivelMan v1.....929
	MacroMind Three-D.....929
	Mass Micro QuickImage 24.....609
	Motion Works ADDmotion.....179
	MovieEdit.....129
Spreadsheets	Lotus 1-2-3.....319
	Microsoft Excel 3.0.....295
	Informix WingZ v1.1.....229
	Clariscad Resolve.....149
Word Processing	Caere OmniPage 3.0.....399
	Caere WordScan v1.0.....119
	Clariscad MacWrite II.....119
	Ind. Soft Resume Writer.....58
	Microsoft Word 5.0.....289
	Quesot RightWriter.....55
	Reference Grammatik Mac.....53
	Round Lake LetterWorks.....45
	T/maker WriteNow v2.2 w/Grammatik.....110
	WordPerfect 2.0.....265
Utilities	Advance Software QuickTools.....45
	Alsoft Disk Express II 2.07.....55
	Baseline INIT Manager 1.1.....34
	Berkley Systems After Dark 2.0.....27
	CE Software Desktop 4.0.....59
	CE Software Tiles v1.0.....57
	Connectix Hands-Off.....56
	Dantz Development DiskFit Pro.....74
	Dantz Development Retrospect 1.3.....147
	Fifth Generation File Director.....79
	Fifth Generation Pyro 4.0.....25

The CallSoft Value:

- Same Day Shipping • Knowledgeable Staff
- No Visa, M/C Surcharge
- Corporate P.O., A.P.O., F.P.O. and International Orders Welcome

CallSoft

Estd Since 1982

Your Best Value Period!

Software and Peripherals at Best Prices and Full Service

ORDER NOW AT
1-800-777-5014
 (Mon-Fri 8:00AM - 8:00PM EST)

OVER 10 DISTRIBUTION CENTERS
 NATIONWIDE



IO Design - The Ultimate Notebook EX Carrying Case is custom designed to carry a notebook computer as well as the accessories. Comes with a detachable strap with shoulder pad.

\$69

Replacement of defective items. There is a 15% restocking fee on any non-defective, unopened goods returned. Software prices may change without notice. Ground shipments free, \$7.50 for 2-day, \$22.00 for overnight, and \$4.50 for C.O.D.



HandiWorks - Full word processing and spreadsheet capabilities in a powerful page layout environment. Also includes an address database for letters, faxes, etc. or mailmerge letters. Requires little RAM.

\$109

Sticky Business 1.5 - is a versatile label application that functions like a desktop publishing program especially to create cards, tags and envelopes. It has over 300 predefined templates.

S-V Plus 1.5 - also includes bar coding.

\$40

My Disk Labeler 3.1 - Creates neat practical disk labels that list the contents of disks, or attractive custom labels. Print up to 100 file names on a label.

\$42



Quick Card - Design a business card using your own fonts and sizes. Import graphics and print cards out on a laser printer.

\$28



WordPerfect 2.0 - has a graphics and drawing package built in. You don't have to leave your document to incorporate graphics because you can create, edit, size, scale and crop graphic figures by clicking "graphics" or "draw".

\$269

Need a gift? Gift Certificates Available

Utilities	Fifth Generation Suitecase II.....49
	Insight Development Mac Print v1.3.....85
	Kent Marsh LTD FileGuard 2.7.....105
	Kent Marsh LTD FolderBolt.....69
	Kent Marsh LTD GuardCard.....95
	Microcom Complete Undelete.....44
	Microcom Virex v3.1.....55
	Now Utilities 3.0.....79
	Salient DiskDoubler 3.7 or AutoDoubler.....45
	Symantec AntiVirus for Mac (SAM).....61
	Symantec Norton Utilities for Mac.....79
	Symantec Sum II 2.1.....92
Accessories	Avery Dennison MacLabel Pro.....45
	Curtis Keyboard Organizer.....25
	Curtis TK-2 52 piece Tool Kit.....45
	Kensington Antiglare Filter.....Call
	Kensington Apple Security System.....32
	Kensington LaserStand.....110
	Kensington Master Stand.....52
	Kensington PassProof.....59
	Kensington System.....59
	SaverMac.....59
	Kensington Turbo Mouse ADB.....99
	MacLuggage Ult Notebook EX.....69
	MacLuggage Ult Notebook SL.....59
	MacLuggage Ult Classic /SE.....65
Displays & Video	E-Machine Color Page E16.....1029
	E-Machine Color Page T16.....1699
	Magnavox 9CM080 Monitor.....329
	Seiko CM 1445 14" Color Monitor.....539
	Seiko CM 1445 Color w/ 264 board.....1029
	Sigma ColorMax 19" Trinitron Color.....2349
	Supernac SuperMatch 19" Color.....1699
Hardware/Peripherals	Address Writer Envelope Printer.....499
	Colorsnap 32+.....649
	DoveFax Plus.....359
	Electrodeux Plus.....129
	Epson ES 300C Image Scanner.....1449
	Hayes Ultra 144.....899
	Kensington Master Piece Mac II.....105
	Lightning Scan Pro 256.....499
	MacPro Plus Keyboard.....145
	Mouseman.....79
	New Life I.....219
	Pocket Electrodeux.....115
	Practical Smartpack 2400 Modem.....209
	Practical Smartpack 9600 Modem.....529
	ProModem 24/96 fax modem.....278
	ProModem 2400 Mini External.....99
	Scanman Model 32.....299
	T/Maker Power Bundle.....155
	Teleport ADB Fax Modem.....184
	Teleport/Fax 9600.....185
	The Label Writer II.....189
	Logitech Trackman.....89
	Typeist Plus Graphics.....449
Input	Datadesk Int 101E Keyboard.....115
	Datadesk Int 101E w/Quickkeys 2.....139
	Kensington Turbo Mouse ADB.....99
	KeyTronics TrackPro.....218
	Mouse Systems A3 Mouse.....79
	Mouse Systems A3 Trackball.....73
Networking	Asante EN/SC.....279
	Asante Maccon + 301 ET.....179
	Asante Maccon II ET 64.....199
	Asante Maccon II ET.....159
	Dayna Etherprint.....309
	Dayna Port E/II.....199
	Dove Fax Plus Fax/Modem/Answering.....309
	Eagle Etherport II.....179
	Farallon Phonenet Star Connector.....15
	Farallon Phonenet Dir 8 or 9.....239
	Suprafax Modem Plus.....179
Printers/Scanners/Storage	Abaton Laser Script LX.....1499
	Epson EPL-7500 Laser Page Printer.....2599
	Caere Typist Plus Graphics.....399
	Kodak Color 4 Ink Jet.....599
	Logitech Scanman 32 Mac.....269
	Microtech Scanner 600 ZS.....1259
	Orange Micro Grappler LS.....65
	QMS PS 410.....1699
	QMS PS 810.....2499
	Quantum Pro Drive 105 SCSI LP1.....359
	Quantum Pro Drive 52 SCSI LP1.....219
	Smart Label Printer Plus.....165
	Kodak Diconics M150plus.....309
	Nec Silentwriter 90 w/rebate.....1529
	Okidata OL840 Par/Ser/Appletalk.....1599
	Seikosha SP 2000 AP Printer.....235
	Mass Micro Datapak II Dual.....1199
	Sharp JX-320 Color Scanner w/MAC interface and Photo Shop Software.....1499
	Transparency/Film Scan Unit.....999

We Take Care Of You

Lowest Prices ■ Overnight Delivery only \$3 ■ Money Back Guarantees*

Accessories

ABCOM	
CARRY CASE CI, CX, SI, IMGWTR.....	82
CARRY CASE SE/PLUS EXTEND KBD.....	86
POWERBOOK CASE.....	72
DUST COVERS from.....	15
APPLIED ENGINEERING	
AE HIGH DENSITY 3.5 MAC DRIVE.....	225



\$289

PROGRAPH 2.5 (NEW VERSION!)

Powerful object-oriented visual programming! Database engine provides multi-user access to multiple tables, indexes, arbitrary data types. System 7 savvy includes IAC support. Use Prograph to quickly create compiled, stand-alone Mac apps without learning a word of C!

ARTICULATE SYSTEM	
VOICE NAVIGATOR II.....	565
VOICE IMPACT.....	78
VOICE IMPACT PRO.....	198
KEYTRONICS	
MACPRO PLUS.....	139
LOGITECH	
MOUSEMAN.....	79
MOUSE SYSTEMS	
LITTLE MOUSE ADB or MAC PLUS.....	74
WACOM	
12" X 12" ELECTROSTATIC TABLET.....	838
12" X 12" STANDARD TABLET.....	775
6" X 9" STANDARD.....	519
Full line of Digitizing tablets available.....	
CALL	



\$209



MICROPHONE II 4.0

Microphone II 4.0 is the most widely used interactive telecom software. Version 4.0 is System 7 savvy; supporting features like Apple events, publish and subscribe, balloon help, aliases and the connection manager of the communication tool box. Sophisticated user interface tools make electronic mail and access to remote services a snap. Emulates VT52, VT102, VT220/320, and PC ANSI. Supports XMODEM, YMODEM-G, ZMODEM, long-packet Kermit and CLS Quick.

Communications

DOVE	
DOVEFAX PLUS.....	355
HAYES	
PERSONAL MODEM 2400 PLUS.....	148
SMARTMODEM 2400 & SMARTCOM.....	345
ULTRA 9600 MODEM.....	782
SMARTCOM 3.3.....	82
HAYES CONNECT 3.0.....	46
PROMETHEUS	
MINIPLUS 2400 V.42 & MacKnowledge.....	128
24/96MSR FAX MODEM (MAXFAX).....	265
9600/9600M PLUS V.32/42 MNP5.....	665
ULTIMA14,400 BAUD MODEM/9600 FAX.....	685
SHIVA	
ETHERGATE.....	1289
ETHERPORT.....	285
FASTPATH.....	1985
SOFTWARE VENTURES	
MICROPHONE II 4.0.....	209



\$128

V.42 MINIPLUS

All the features of modems twice their size at half the cost. 2400 bps data modems with V.42bis/ MNP-5 data compression and error correction, one with 9600 bps send / receivefax, one without. Both offered as complete packages with all the software and cables.

WITH 9600 SEND/RECEIVE FAX.....\$228

Storage

CD TECHNOLOGY	
CD PORTA DRIVE.....	632
CHINON	
CDC-431 CD ROM REMOTE DRIVE.....	585
FWB	
POCKETHAMMER 50 MEG.....	562
POCKETHAMMER 100 MEG.....	758
POCKETHAMMER 200 MEG.....	1198
IOMEGA	
BERNOULLI90 MB TRANSPORTABLE.....	788
CARTRIDGES (90 MEGS).....	144
MASS MICRO SYSTEMS	
DATAPAK 45 REMOVEABLE HD.....	639
DATAPAK 88 REMOVEABLE HD.....	849
DIAMOND PORTABLE 2" 80MB.....	435
DIAMOND PORTABLE 2" 210MB.....	898
HITCHHIKER 40MB.....	495
HITCHHIKER 80MB.....	559
MICROTECH	
NOVA 200.....	1145
NOVA 320.....	1395
PLI	
45 CARTRIDGE.....	79
INFINITY 40 SINGLE W/CARTRIDGE.....	659
RODIME	
R45 PLUS REMOVABLE HD.....	598



\$46

HAYESCONNECT™ 3.0

Don't Buy Anything Else! HayesConnect is the software solution that enables you to share modems, printers, plotters, and other serial devices on your AppleTalk network.

VISION LOGIC	
MACPOCKET 20MB.....	299
MACPOCKET 40MB.....	390

Monitors & Boards

APPLIED ENGINEERING	
CACHE IN.....	185
FASTMATH LC.....	129
QUICKSILVER.....	265
GENERATION SYSTEMS	
MAC II, CLASSIC 19" MONO SYS.....	995
MAC II, CLASSIC 15" MONO SYS.....	635
MASS MICRO SYSTEMS	
COLOR SPACE.....	Special pricingCALL
DATAPAK.....	639
QUICKIMAGE W/PHOTOSHOP.....	559
RIVAL 19" MONO SYSTEM, MAC II, SE.....	1075
MICRON	
MACROCOLOR II 24 BIT VIDEO CARD.....	477
GRAY-SCALE 30 8BIT CARD FOR SE30.....	84
COLOR 30 VIDEO CARD FOR SE30.....	339
XCEED IICI CACHE CARD.....	235
NEC	
MULTISYNC FG SERIES.....	CALL

Printers/Scanners

ABATON	
LASERSCRIPT LX PRINTER.....	1599
SCAN 300 COLOR.....	999
BEZIER	
BP 4040 LASER PRINTER.....	1399
CAERE	
TYPIST PLUS.....	469



\$299

Marstek SCANNERS

M-800 MAC 64 turns your MAC into a professional darkroom. Capture up to 64 gray levels. Produce high quality B & W images. Bundled with Enhance.

LANGELO combines color and true gray-scale scanning into one. Bundled with Color II!

LANGELO COLOR.....\$412
LANGELO-MAC256 (Gray).....\$328
Bundled with enhance.

MacANGELO II provides an affordable desktop scanner with outstanding image quality. Bundled with Photoshop.
MAC ANGELO II MFS 6000.....\$1099

CALERA	
WORDSCAN.....	214
WORDSCAN PLUS.....	638
CHINON	
DS 3000 COLOR SCANNER.....	696
DEST	
PERSONAL SCAN & RECOGNIZE.....	669
MACSCAN 3000.....	990
GENERAL PARAMETRICS	
SPECTRASTAR 430 COLOR PRINTER.....	CALL
KODAK	
DICONIX PRINTER.....	369
LOGITECH	
SCANMAN SCANNER.....	299
MARSTEC	
MARS 800-MAC 64 HAND SCANNER.....	299
COLOR ARTIST HAND SCANNER.....	579
LANGELO-COLOR II.....	412
LANGELO-GRAY MAC256.....	328
MACANGELO II MFS 3000.....	869
MACANGELO II MFS 6000.....	1099
MICROTEK	
SCANMAKER 1850S SLIDESCANNER.....	2099
SCANMAKER 600GS GREYSCALE.....	1118
SCANMAKER 600ZS COLOR SCAN.....	1459
TRUE LASER/TRUEIMAGE LASERPRTR.....	1299
NEC	
COLORMATE PS MODEL 40.....	4999
SILENT WRITER 2 MODEL 90.....	1499
QMS	
COLORSCRIPT 100 10P.....	4995
QMS PS 815 LASER 8PPM 20MMz.....	3088
QMS PS 815MR LASER 600x600 dpi.....	4995
QMS PS 410.....	1688
UMAX	
UMAX COLOR 600.....	1375

\$469

CAERE

TYPIST PLUS GRAPHICS

The Typist Plus Graphics scans text directly into an open word processor or spreadsheet file. The OCR software recognizes text in any non-stylized font from six to 72 points. This hand-held scanner also scans graphics, and includes Graphic Editor software to save your images as TIFF, PICT, PICT2, MacPaint, or EPS files. It handles line art as well as gray-scale, and it has a five-inch wide scanning path with software to combine two passes together.



\$214

WORDSCAN

The most accurate omnifont OCR technology. The Preview Window lets you check the accuracy of the scan and clip only what you want recognized. Built-in dictionaries help WordScan read pages other OCR software can't. WordScan even reads dot-matrix and fax documents.

WORDSCAN PLUS.....\$638

Business

CD TECHNOLOGY	
MULTIMEDIA HANDISK.....	69
CLARIS	
CLARIS CAD 2.0.....	625
FILEMAKER PRO.....	209
RESOLVE.....	265
CHIPSOFT	
MACINTAX.....	56
STATES When available.....	42
DELTAPOINT	
DELTA GRAPH PRO.....	186
DESIGNCAD	
DESIGNCAD 2D/3D.....	378
DEST	
PERSONAL SCANNER W/ RECOG.....	669
FISHER	
IDEA FISHER.....	384
INNOVATIVE DATA DESIGN	
DREAMS.....	399
MACDRAFT.....	276
JIAN	
BIZ PLAN BUILDER.....	78
LIVING TRUST BUILDER.....	84
EMPLOYEE MANUAL MAKER.....	84



\$69

THE MULTIMEDIA HANDISK

Offers comprehensive multimedia solutions, including demonstrations, tutorials, a glossary of terms, product directories, libraries of background graphics, animations, sounds, music, sample HyperCard™ stacks, and much more—everything you need to create impactful, high-quality multimedia presentations.

The award winning CD Porta-Drive is compact, fast and versatile. It is also the most reliable, compatible, and dependable multimedia CD-ROM drive available on the market today.

CD PORTA DRIVE.....\$632

MICROSOFT	
EXCEL 3.0.....	308
MICROSOFT OFFICE.....	595
MICROSOFT WORD 5.0.....	310
NEW ERA	
NUBASE.....	174
PARAGON	
NISUS 3.0.5.....	238
NISUS COMPACT 3.3.....	96
SENSIBLE SOFTWARE	
SENSIBLE GRAMMAR.....	54
SAS INSTITUTE	
JMP 2.0.....	589
TGS	
PROGRAPH.....	289
TIMESLIPS	
TIMESLIPS III 2.0.....	187
TIMESLIPS TAL MODULE.....	55
WOLFRAM	
MATHEMATICA 2.0.....	CALL



DELTAGRAPH PROFESSIONAL *DeltaPoint.*

The most complete solution for advanced charting, graphics and presentations. It features 40 chart types, custom chart Libraries, a full set of postscript drawing tools, extensive data import, Quicktime support, a built-in presentation slide show and total System 7 compatibility.

\$186

WORDPERFECT

WORD PERFECT 2.03.....	275
WORDPERFECT OFFICE.....	88

WORDSTAR

CORRECT GRAMMAR.....	48
AMERICAN HERITAGE DICTIONARY.....	48

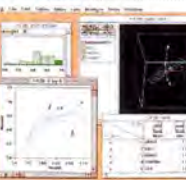
Graphics & Publishing

ABRACADABA

DESIGN Interiors/Landscape/Architecture.....	62
--	----

ADOBE

ENTIRE FONT LIBRARY <i>Special Price</i> CALL	
ILLUSTRATOR 3.2 (WHEN BUY P/SHOP).....	316
ILLUSTRATOR 3.2 WITH ATM.....	338
PHOTOSHOP 2.0..... <i>Special Price</i>	479
PREMIERE 1.0.....	309
STREAMLINE 2.0.....	118
TYPE ON CALL.....	45
TYPE SET 1 OR 2.....	62
TYPEALIGN.....	65



JMP 2.0 *WINNER 1991 TARGET AWARD*

Find out where your data *really* lies and JMP to the right conclusions! JMP 2.0 features *double* the functionality of the original version and provides multi-variate analyses, non-parametrics, non-linear fitting, real time data acquisition, control charts, pareto charts, capability analysis...and much more!

\$589

AGFA

AGFA TYPE 3.0.....	59
STUDIO SERIES SPECIAL any 8 fonts, get 4 studio fonts free.....	255
TOSHIBA XM-3301 CD DRIVE.....	688

ALDUS

FREETYPE 3.1.....	388
PAGEMAKER 4.2.....	489
PERSUASION 2.0.....	319

ALTSYS

FONTGRAPHER.....	265
METAMORPHIS PROFESSIONAL.....	88

CLARIS

MACDRAW PRO.....	275
------------------	-----

DENEBA

CANVAS 3.0.....	246
-----------------	-----

DYNARE

DYNAPERSPECTIVE 2.3 1 new version.....	534
--	-----

FRAME

FRAMEMAKER.....	589
-----------------	-----

GOLD DISK

ANIMATION WORKS.....	119
----------------------	-----

MICROFRONTIER

ENHANCE.....	199
COLOR IT.....	69

MONOTYPE

TRUETYPE IMPRINTS.....	21
DESIGNING REPORTS & Presentations.....	115

MOTION WORKS

ADDMOTION.....	177
----------------	-----

MULTI AD SERVICES

MULTI-AD CREATOR.....	498
-----------------------	-----

PARACOMP

FILM MAKER.....	429
MODEL SHOP 2.0.....	559
SWIVEL 3D PRO 2.0.....	429

PIXAR

MACRENDERMAN & SHOWPLACE.....	546
-------------------------------	-----

QUARK

QUARKXPRESS 3.1 new version.....	579
----------------------------------	-----

RAY DREAM

JAG.....	64
RAY DREAM DESIGNER.....	592



SENSIBLE GRAMMAR 2

The *incubator* way to improve your writing.

\$54

SENSIBLE GRAMMAR 2

An extremely powerful proofreading program. Unique features include advanced error checking (dangling phrases, squinting modifiers, etc.), clipboard checking, System 7 savvy, writing styles, library of 4,500 misused phrases, readability analysis, built-in help, etc.

SPECULAR INTERNATIONAL

INFINI-D 3D RENDERER.....	645
---------------------------	-----

STRATA

STRATAVISION 2.0 new version.....	598
TEXTURES.....	CALL

TIME ARTS

OASIS.....	525
OASIS & WACOM TABLET.....	945

TIMWORKS

PUBLISH IT EASY MAC.....	136
--------------------------	-----

TYPE SOLUTIONS

THE INCUBATOR.....	95
--------------------	----

VISUAL DEVELOPMENT

PRESENTER PRO w/MACRENDERMAN.....	3299
-----------------------------------	------

ZEDCOR

DESK PAINT AND DRAW.....	98
--------------------------	----

Networking

ASANTE

FULL LINE OF PRODUCTS AVAILABLE.....	CALL
--------------------------------------	------

CARAVELLE

MAC TO MAC 10 PACK.....	199
-------------------------	-----



BIZPLANBUILDER

A comprehensive business plan with 70+ pages of text and financials. Proven effective—45,000+ sold!

\$78

EMPLOYEE MANUAL MAKER

125+ policies, 30 benefits and an Employer Survival Guide—a substantial head-start for creating a custom employee handbook.

\$84

LIVING TRUST BUILDER

Create your own trust with customizable documents. Includes reference guide—how to avoid probate, taxes, etc. Save legal fees.

\$84



THE INCUBATOR!™

Create thousands of fonts from your existing TrueType™ fonts! Easy-to-Use program lets you make your own distinctive creations in minutes. Unleash the power of four typographical controls. If you have System 7.0, you have TrueType. If you have TrueType, you need the Incubator!™. Hatch your own batch Today!

\$95

THE INCUBATOR!™

Create thousands of fonts from your existing TrueType™ fonts! Easy-to-Use program lets you make your own distinctive creations in minutes. Unleash the power of four typographical controls. If you have System 7.0, you have TrueType. If you have TrueType, you need the Incubator!™. Hatch your own batch Today!

FARALLON

STAR CONTROLLER 300.....	889
STAR CONTROLLER ETHERNET.....	1395
TIMBUKTU 4.0.....	133
TIMBUKTU REMOTE 2.0.....	133

INSIGNIA

UNIVERSAL SOFT PC.....	195
SOFTAT.....	295

MICROCOM

CARBON COPY MAC.....	57
----------------------	----

NUVOTECH

TURBONET DIN-8 or DB9.....	24
TURBONET ST DIN-8 or DB9.....	32

SITKA

MACTOPS BUNDLE.....	179
---------------------	-----

Utilities/Programming

ADOBE

ADOBE TYPE MANAGER 2.0.....	57
-----------------------------	----

AFTER HOURS SOFTWARE

TOUCHBASE.....	77
----------------	----



COLOR IT!

32 Bit Painting- Affordable Price!

Color It!'s advanced image processing and painting features include:

- Virtual images • Multiple undo/re-dos
- Support for common plug-ins • Anti-aliased tools, brushes, and text
- Advanced 1, 4, 8 bit Image masks • Available for Mac SE30, LC or any II • 30 day money back guarantee.

\$69

COLOR IT!

32 Bit Painting- Affordable Price!

Color It!'s advanced image processing and painting features include:

- Virtual images • Multiple undo/re-dos
- Support for common plug-ins • Anti-aliased tools, brushes, and text
- Advanced 1, 4, 8 bit Image masks • Available for Mac SE30, LC or any II • 30 day money back guarantee.

ALADDIN

STUFF IT DELUXE 2.0.....	62
--------------------------	----

ALYSIS

MORE DISK SPACE.....	65
SUPER DISK.....	58

BERKELEY

AFTER DARK.....	33
MORE AFTER DARK.....	28
AFTER DARK/MORE AFTER DARK BDL.....	48

CD TECHNOLOGY

AMERICA ALIVE(CD).....	69
------------------------	----

CE SOFTWARE

DISKTOP 4.0.....	62
QUICKEYS 2 2.1.....	92
TILES.....	62

CHENA SOFTWARE

FAIR WITNESS 1.1.....	299
-----------------------	-----

ESSENTIAL SOFTWARE

EASY ALARMS.....	29
------------------	----

FWB

HARD DISK TOOLKIT.....	134
------------------------	-----

ICOM SIMULATIONS

ON CUE II.....	56
SHERLOCK HOLMES CD.....	39

IMAGEN

ULTRASCRIP PLUS.....	285
----------------------	-----

INSIGHT DEVELOPMENT

MACPRINT.....	89
---------------	----

JEDDAK

SOFTLIBRARIAN.....	79
--------------------	----

MICROCOM

VIREX 3.0.....	59
VIREX 3.0 10 PACK.....	345

MICROSPOT


MACPALETTE II.....	55
--------------------	----

MULTI AD SERVICES

MULTI-AD SEARCH.....	108
----------------------	-----

NINE TO FIVE SOFTWARE

REPORTS 2.1.....	93
RESCUE.....	58



CINEMATION

Cinematic makes it easy to create interactive presentations with professional-quality animation, sound, and QuickTime™ video. Cinematic also animates PowerPoint™ or Persuasion™ presentations. The program includes paint tools, a CinePlayer™, a HyperCard™ XCMD for controlling movies, and 12 megabytes of animation.

\$356

PC PC

NETSTREAM.....	188
----------------	-----

PASTEL

DAYMAKER.....	64
---------------	----

SALIENT

DISK DOUBLER.....	46
-------------------	----

SERIOUS

SERIOUS DEVELOPER 3.0 new version.....	414
SERIOUS PROGRAMMER 3.0 new version.....	275
SERIOUS POWER OPTIONS various.....	CALL

SOFTWARE COMPATABILITY

SOFTWARE BRIDGE.....	59
----------------------	----

SOFTWARE PUBLISHERS

ACCUIZ.....	612
-------------	-----

SYMANTEC

NORTON UTILITIES 1.1.....	86
SAM 3.0.....	63
SUM II.....	96
THINK C 5.0.....	196

VISIONARY SOFTWARE

FIRST THINGS FIRST.....	41
-------------------------	----

Policies

- Visa, Mastercard & Amex accepted.
 - Credit card is not charged until order is shipped.
 - California residents add 8.25% sales tax
 - Hours: Mon-Fri 9:30-11 EST
Sat 11-6 EST
 - Call (818) 504-1800 FAX (818) 504-9380
 - Compatibility not guaranteed.
 - All prices & policies subject to change without notice.
- Shipping**
- \$3. Airborne Overnight continental U.S. Hardware over 10 lbs will be shipped ground.
 - Same day shipping. Some areas may require an extra day.
- Returns**
- Call for R.A. number before return
 - Restocking fee may apply.
- *Money Back Guarantee**
- Most products have a 30-day money back guarantee. Please inquire when you order. Retain original packaging to ensure proper credit.

Corporate Accounts:

- Call our Corporate 800#
1-800-283-7622
- Open an account within 24 hours
- Volume discount pricing
Fed. ID# 95-4183196

International Dealer Program

- We ship worldwide
- Call about our special pricing & services



Dr Mac

1-800-825-6227 from the U.S. & Canada

Fax: (818) 504-9380 or (818) 504-2159

11050 Randall Street, Sun Valley, CA 91352 • (818) 504-1800

CIRCLE 38 ON READER SERVICE CARD.

CALL DR-MAC 1-800-825-6227

AD INDEX

MacUser

950 Tower Lane, 18th Floor
Foster City, CA 94404
Phone (415) 378-5600
Fax (415) 378-6903

National

Janet Ryan, Publisher (415) 378-5666
Jonathan A. Lane, Assoc. Publisher (415) 378-5640
Ellen Ecker, Advertising Sales Director (415) 378-5692
Elizabeth McGinnis, Advertising Coordinator
(415) 378-5606
Vickie Pinsky, Classified Advertising Director
(212) 503-5115

East

Northeast (MA, ME, NH, RI, VT, CT, east Canada)

Gina Ciampa, District Manager
Mystic Center, 10 President's Landing
Medford, MA 02155; (617) 393-3065
Nancy Romano, Account Representative
(415) 378-5657
Kristina Sweet, Sales Assistant (617) 393-3064

Mid-Atlantic/Southeast (NY, NJ, PA, DE, MD, DC, VA, WV, NC, SC, GA, FL)

John DeCesare, District Manager
One Park Ave.
New York, NY 10016; (212) 503-5416
Sam Lavin, Account Representative
(415) 378-5677
Janice Johnson, Sales Assistant (212) 503-5144

Central (WI, IN, MO, OH, MI, IA, ND, SD, AL, MS, TN, MN, OK, KS, IL, KY, LA, NE, AR, TX, central Canada)

Stephen Shore, District Manager
5956 Sherry Lane, Suite 625
Dallas, TX 75225
(214) 360-5785
Joann Casey, Account Representative
(415) 378-5622
Molly Eastin, Sales Assistant (214) 360-5780

West

Northwest CA (San Francisco and north), NV, AK, OR, HI, MT, WA, ID, Canada (British Columbia, Alberta, and Saskatchewan)

Mark V. Glasner, District Manager
950 Tower Lane, 18th Floor
Foster City, CA 94404
(415) 378-5628
Mary Beth Plaskon, Account Representative
(415) 378-5651

Bay Area (Carmel to San Francisco)

District Manager
950 Tower Lane, 18th Floor
Foster City, CA 94404
(415) 378-5605
Laurie Eddy, Account Representative
(415) 378-5658
Maura Pratt, Sales Assistant (415) 378-5634

Southwest CA (San Luis Obispo county and south), AZ, NM, UT, WY, CO

Lee J. Uniacke, District Manager
(213) 351-1842
Amanda Waterfield, District Manager
(213) 351-1841
3530 Wilshire Blvd.
Los Angeles, CA 90010
Deborah Tyo, Account Representative
(415) 378-5630

Ziff-Davis Magazine Networks

Ziff-Davis MacNET Advertising Sales: MacUser and MacWEEK in combination.

J. Samuel Huey, Group Vice President
(415) 578-7310
Joseph Gillespie, Managing Director
(212) 503-5650

RS#	ADVERTISER	PAGE
30	A & A Co., Ltd.	264
176	Advance Business Center	261
100	AEC Software	6
N/A	After Hours Software	4
N/A	AGFA Corp. Type Div.	BG33
43	AGFA Corp. Scanner Div.	BG13
N/A	AGFA Corp.	BG59
183	Aladdin Systems, Inc.	242
N/A	Aldus Corporation	190-191
147	Alliance Peripheral	291-293
169	ALSoft, Inc.	18
12	Altsys Corporation	166
N/A	America OnLine	197-198
69	Applied Engineering	5
81	Asanté Technologies	20
82	Asanté Technologies	186
N/A	ATTAIN Corporation	73
21	BBN Software	57
19	Berkeley Systems	52
N/A	Bottom Line Distribution	268-269
25	Caere Corporation	12
171	CalComp	202
172	CalComp	202
236	CallSoft	247
20	Canon USA	BG65
135	CheckMark	235
39	Chinon America, Inc.	BG27
N/A	Clarix Corporation	19
N/A	Clarix Corporation	31
N/A	Clarix Corporation	74
N/A	Clarix Corporation	76-77
46	Club Mac	280
249	Compumation	234
26	Computer Friends, Inc.	75
62	Connectix Corporation	BG37
88	CoStar	230
27	Dantz Development Corp.	75
78	DataProducts Corp.	72
170	DataViz	11
133	Dayna	184
159	Daystar Digital	10
185	Deneba Software	15
242	dgr Technologies, Inc.	290
33	Direct Tech	270
122	Diskette Connection	264
38	Dr. Mac	248-249
22	Dubl-Click	54
35	Dustin Discount Software	17
151	E-Machines	BG20-21
112	Educational Resources Ltd.	289
63	ETC Peripherals	BG53
125	Express Direct	253-255
175	Farallon Computing, Inc.	C8
102	Fifth Generation Systems	24
103	Fifth Generation Systems	200-201
240	Focus, Inc.	8-9
126	Frame Technology	40
84	FWB, Inc.	170
162	GCC Technologies	173
165	GCC Technologies	175
164	GCC Technologies	BG35
163	GCC Technologies	243
18	GDT Software Inc.	30
16	Genstar Rental Electronics, Inc.	199
N/A	Hard Drives International	265
197	Hardware That Fits	192-193
198	Hardware That Fits	208-209
199	Hardware That Fits	222-227
N/A	Image Club Graphics, Inc.	169
129	Impulse Technology	50
52	In Focus Systems	BG39
152	Insignia Solutions	194
97	Kaetron Software Corp.	14
98	Kaetron Software Corp.	16
36	Kent Marsh Ltd.	236
N/A	La Cie Limited	281-288

RS#	ADVERTISER	PAGE
178	LaserMaster Corporation	241
190	Letraset	204
74	Liberty Systems	264
N/A	Lotus	216
41	Mac & MORE, Inc.	274-275
83	MacAcademy	BG47
1	MacCenter	219
1	MacCenter	266-267
N/A	MacConnection	60-69
53	MacDepot	263
106	MacDirect	258
95	MacFRIENDS	51
94	MacFRIENDS	167
93	MacFRIENDS	207
92	MacFRIENDS	231
150	MacLand	276-279
130	MacNews	272-273
137	MacProducts USA	302-303
N/A	Mac's Place	294-301
48	MacSource	246
N/A	MacTable/ScanCo	199
154	MacTel Technology Corp.	260
17	MacTown	262
156	MacWarehouse	178-183
N/A	MacZone, The	32-39
77	Mainstay	94
61	MarketPlace Info. Corp.	22
239	Maxa Corporation	210
80	Maxell	237
244	MAYA Computer	259
64	Micro Security Systems	262
76	Microcom, Inc.	196
138	MicroNet Technology, Inc.	BG63
136	MicroNet Technology, Inc.	164
N/A	Microsoft	C2-C4, 1
N/A	Microsoft	238
174	Microtek Lab, Inc.	BG61
42	MindGate Technologies, Inc.	56
118	Mirror Technologies	C5-C7
124	Mobius Technologies, Inc.	271
143	NEC Technologies, Inc.	BG2-3
142	NEC Technologies, Inc.	BG67
70	Nest Software	59
23	NewGen Systems	220
24	NewGen Systems	220
75	Now Software	28
58	Orange Micro	55
79	Outbound Systems, Inc.	232
73	Peachtree Software	168
72	Pinnacle Micro	BG45
181	PLI	BG68
66	PrePress Direct	BG51
127	Prescience Corporation	229
132	Printer Connection	270
157	Printware, Inc.	230
68	Proxima Corporation	BG15
50	QMS, Inc.	53
51	QMS, Inc.	70
195	Radius, Inc.	BG8-9
N/A	RasterOps	BG43
123	Salient Software	212
N/A	Seiko Instruments	27
85	Specular International	171
131	Supermac	BG56
N/A	Symantec Corporation	26
N/A	Symantec Corporation	93
86	T/Maker	58
105	TechWorks	BG49
40	Tektronix	BG41
71	Texas Instruments	7
101	Third Wave Computing	256-257
246	UMAX Technologies	BG31
161	Verbatim Corporation	23
N/A	WordPerfect	82-83
108	XANTE Corporation	BG29

BG denotes 1992 MacUser Color Buyer's Guide

IT'S AS EASY AS 1, 2, 3

1. Check off your answers to the six research questions.

2. Circle the numbers on the card that correspond to the ads or articles you'd like more information about.

3. The literature will be mailed to you from the advertiser free of charge.

Void after August 31, 1992

CIRCLE FOR FREE INFORMATION

001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 026 027 028 029 030 031 032 033 034 035 036 037 038 039 040 041 042 043 044 045 046 047 048 049 050
 051 052 053 054 055 056 057 058 059 060 061 062 063 064 065 066 067 068 069 070 071 072 073 074 075 076 077 078 079 080 081 082 083 084 085 086 087 088 089 090 091 092 093 094 095 096 097 098 099 100
 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150
 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200
 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250
 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300
 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350
 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400
 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450
 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500
 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550
 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600

1. For how many micro computers do you buy products? (check one)

☐ 01) 1-4 ☐ 02) 5-49 ☐ 03) 50+

2. Your primary job function is: (check one)

☐ 01) Administrative/General Management ☐ 03) Engineering/R&D
☐ 02) MIS/DP, Communications Systems, Programming ☐ 04) Finance/Accounting
☐ 05) Marketing/Sales ☐ 06) Computer Dealer/VAR

3. For which of the following products are you involved in selecting brands/models to be bought by your company or organization? (check all that apply)

4. Which of the following products have you bought in the last 6 months? (check all that apply)

SOFTWARE
 Accounting
 Spreadsheets
 Project Managers
 Word Processors
 Database Managers
 Graphics
 Integrated Software
 Communications
 Utilities

Q3 Q4
☐ 01 ☐ 01
☐ 02 ☐ 02
☐ 03 ☐ 03
☐ 04 ☐ 04
☐ 05 ☐ 05
☐ 06 ☐ 06
☐ 07 ☐ 07
☐ 08 ☐ 08
☐ 09 ☐ 09

HARDWARE

Modems
 Scanners
 Microcomputer
 Printers/Plotters
 Monitors/Displays
 Storage
 Add-in Boards
 Networking

Q3 Q4
☐ 10 ☐ 10
☐ 11 ☐ 11
☐ 12 ☐ 12
☐ 13 ☐ 13
☐ 14 ☐ 14
☐ 15 ☐ 15
☐ 16 ☐ 16
☐ 17 ☐ 17

5. If so, what function do you serve in the buying process? (check all that apply)

☐ 01) Initiation/ Determine Need
☐ 02) Selection of Brand and Model
☐ 03) Selection of Source
☐ 04) Authorization
☐ 05) Other

6. Over the next 12 months, how much will your organization spend on computer products or services? (check one)

☐ 01) over \$5 million ☐ 05) \$50,000 - \$99,999
☐ 02) \$1 - 5 million ☐ 06) \$10,000 - \$49,999
☐ 03) \$500,000 - \$999,999 ☐ 07) under \$10,000
☐ 04) \$100,000 - \$499,999

MU 5/92-4

PLEASE PRINT CLEARLY

Name _____

Title _____ Phone () _____

Company _____

Address _____

City _____ State _____ Zip _____

4. ☐ Please send me one year (12 issues) of MacUser for \$19.97. Offer valid in U.S. only.

Free Product Information

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 433 RIVERTON, NJ

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser

P.O. BOX 1688
RIVERTON, NJ 08077-9688NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

Free Product
Information

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 433 RIVERTON, NJ

POSTAGE WILL BE PAID BY ADDRESSEE

MacUser

P.O. BOX 1688
RIVERTON, NJ 08077-9688

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



MacUser

READER SERVICE CARD FREE INFORMATION

IT'S AS EASY AS 1, 2, 3

1. Check off your answers to the six research questions.

2. Circle the numbers on the card that correspond to the ads or articles you'd like more information about.

3. The literature will be mailed to you from the advertiser free of charge.

CIRCLE FOR FREE INFORMATION

Void after August 31, 1992

001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 026 027 028 029 030 031 032 033 034 035 036 037 038 039 040 041 042 043 044 045 046 047 048 049 050
051 052 053 054 055 056 057 058 059 060 061 062 063 064 065 066 067 068 069 070 071 072 073 074 075 076 077 078 079 080 081 082 083 084 085 086 087 088 089 090 091 092 093 094 095 096 097 098 099 100
101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150
151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200
201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250
251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300
301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350
351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400
401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450
451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500
501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550
551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600

1. For how many micro computers do you buy products?
(check one)

☐ 01) 1-4 ☐ 02) 5-49 ☐ 03) 50+

2. Your primary job function is: (check one)

☐ 01) Administrative/General Management ☐ 03) Engineering/R&D ☐ 04) Finance/Accounting
☐ 02) MIS/DP, Communications ☐ 05) Marketing/Sales Systems, Programming ☐ 06) Computer Dealer/VAR

3. For which of the following products are you involved in selecting brands/models to be bought by your company or organization? (check all that apply)

4. Which of the following products have you bought in the last 6 months? (check all that apply)

SOFTWARE
Accounting
Spreadsheets
Project Managers
Word Processors
Database Managers
Graphics
Integrated Software
Communications
Utilities

Q3 Q4
☐ 01 ☐ 01
☐ 02 ☐ 02
☐ 03 ☐ 03
☐ 04 ☐ 04
☐ 05 ☐ 05
☐ 06 ☐ 06
☐ 07 ☐ 07
☐ 08 ☐ 08
☐ 09 ☐ 09

HARDWARE

Modems
Scanners
Microcomputer
Printers/Plotters
Monitors/Displays
Storage
Add-in Boards
Networking

Q3 Q4
☐ 10 ☐ 10
☐ 11 ☐ 11
☐ 12 ☐ 12
☐ 13 ☐ 13
☐ 14 ☐ 14
☐ 15 ☐ 15
☐ 16 ☐ 16
☐ 17 ☐ 17

5. If so, what function do you serve in the buying process? (check all that apply)

☐ 01) Initiation/ Determine Need
☐ 02) Selection of Brand and Model
☐ 03) Selection of Source
☐ 04) Authorization
☐ 05) Other

6. Over the next 12 months, how much will your organization spend on computer products or services? (check one)

☐ 01) over \$5 million ☐ 05) \$50,000 - \$99,999
☐ 02) \$1 - 5 million ☐ 06) \$10,000 - \$49,999
☐ 03) \$500,000 - \$999,999 ☐ 07) under \$10,000
☐ 04) \$100,000 - \$499,999

MU 5/92-4

PLEASE PRINT CLEARLY

Name _____

Title _____ Phone () _____

Company _____

Address _____

City _____ State _____ Zip _____

4. ☐ Please send me one year (12 issues) of MacUser for \$19.97. Offer valid in U.S. only.

E-MACHINES DISPLAYS



Was \$1,095 - Now **\$995**

E-Machines ColorPage E16 - 16"
Color Display (75hz) no card needed
with LC, IIsi, IIfx & Quadra



Was \$1,595 - Now **\$1,295**

E-Machines ColorPage T16 - 16"
Sony Trinitron Full-Page Color Display
(75hz) no card needed with Quadra



\$2,795

E-Machines T19 - 19" Two-Page
Sony Trinitron Color Display (75hz)
Quantities may be limited.

E-MACHINES COLORCARDS

Call Express Direct for information
and prices on the complete line of
E-Machines ColorCards

Save ^{Up}_{To} \$400 on E-Machines Displays!



NEW! ColorPage T16 II

Was \$1,995
Now Only

\$1,595



E-MACHINES

E-Machines ColorPage T16 II - 16" Sony Trinitron Color Display gives you workstation quality with dual resolution that lets you quickly switch from full-page to two-page resolution; Also features 24-bit color with Mac Quadra on-board video and reduced magnetic emissions

Take Advantage of Complete Display System Discounts

SPECIAL OFFER! Now you can save up to \$400 on the the complete line of award-winning E-Machines Displays - including the new ColorPage T16 II. **E** Just buy an E-Machines Display and ColorCard to qualify. Call for complete details.

WE'VE GOT E-MACHINES IN STOCK & AT THE LOWEST PRICES. Express Direct is E-Machines' largest retailer worldwide. And we've got the prices and products **in stock** to prove it. **E** So whether it's 8 or 24 bit color, on-board acceleration, 16" or 19", let our consultants advise you on the right system.

Express Hours (central time):
M-F 8am-7pm; Sat 10am-2pm
24hr Fax, 7 days/week



"The Mac Systems Company"

International Orders Shipped Daily • FAX 312.549.6447

1801 W. Larchmont Ave. • Chicago, IL 60613 USA • 312.549.0030

CIRCLE 128 ON READER SERVICE CARD.

1-800-535-3252

Ref: 15

Make the Right Connections with Asanté

LET US HELP.

At Express Direct we understand Ethernet. Let us help you connect your Macs, PCs and other workstations to a high-speed 10BaseT network.



10 BASET HUBS

Asanté 10T Hub/8 \$259
9 ports: 8UTC, 1 BNC
Asanté 10T Hub/12 \$539
14 ports: 12 8UTC, 1 AUI, 1 BNC

ETHERNET CARDS

MacCon3 NB \$229
For Mac II's; thick, thin & 10BaseT with 64K
MacCon3 for IIsi (& se/30) \$249
Thick, thin & 10BaseT with 64K
MacCon+ LC \$229
Thick, thin & 10BaseT

ETHERNET SCSI DEVICE

EN/SC \$339
SCSI Ethernet for Classic & Plus; thick, thin & 10BaseT
EN/SCPB \$389
SCSI Ethernet for PowerBook; thick, thin & 10BaseT
EN/SC10TPB \$319
SCSI Ethernet for PowerBook; 10BaseT

PERSONTOPERSON

Twin Pack \$129
10-User Pack \$329
Zone Pack \$499

Personal messaging software with live network chatting, QuickSend mailbox, voice messaging, built-in calendar & electronic Post-it note

Don't Just Back up, Move up to PLI



NEW Floptical



Now get 21MB capacity on just one 3.5" Floppy Disk

\$549

PLI Infinity Floptical 21MB – Optical tracking allows for 21 megabyte capacity on just one 3.5" floppy disk • Downward compatible with 1.44MB and 720K floppy diskettes • Twice as fast as standard floppy diskettes • Ideal for backup and distribution

Get the Security & Quality of PLI at Express Direct Prices



★★★★½ PLI Infinity 44 \$619

FREE
2yr Warranty,
Software &
Utilities, Tech
Support &
Data Recovery
with Every
Removable

WE CARRY THE FULL LINE OF PLI STORAGE DEVICES

PLI Infinity 44 Removable \$619
with cartridge
PLI Infinity 88 Removable \$829
with cartridge & all the features of 44MB
PLI Quick SCSI Call
Infinity Optical 3.5" Call

BUY PLI DIRECT. PLI is the most trusted name in removable storage. And we've got them in stock and ready to ship. **E** Let our knowledgeable sales consultants advise you on the storage device that's just right for your needs.



Easy Payment Options & Leasing Terms We accept money orders, cashiers checks and Visa/ MasterCard with no surcharge and your card will not be charged until product ships. Purchase orders are also accepted for those who qualify. Leasing terms available on most products. *

EXPRESS DIRECT
1-800-535-3252

Prices and are subject to change without notice. All warranties on Macintosh/ Apple brand products sold by Express Direct will be honored by Express Direct or its authorized agents only. All other manufacturers' warranties still apply.

macs

for the
minimum!

SOME QUANTITIES ARE LIMITED

MAC CLASSIC, 2/40\$995
MAC CLASSIC II, 4/80.....\$1,445
MAC IIx1, 3/40CALL
MAC IIx1, 5/0\$2,745
MAC QUADRA 700, 4/0\$4,345
MAC QUADRA 900, 4/0\$5,495
MAC POWERBOOK 170CALL

WHY SHOULD YOU BUY YOUR MAC SYSTEM FROM EXPRESS DIRECT? 6 GOOD REASONS

1. PRODUCTS IN STOCK

We inventory Macs. So when you order, most times we have your system right here – ready to ship.

2. LOW PRICES

We've got the most competitive prices in the business. So before you buy from just anybody, call for the Express Direct price.

3. TOLL-FREE TELEPHONE SUPPORT

Our helpful technical team can answer your questions promptly, in easy to understand terms. And it's FREE.

4. COMPLETE SYSTEMS

No matter what your Mac needs are, we can configure a complete system perfect for you.

5. KNOWLEDGEABLE SALES STAFF

Our staff knows the Mac, so you get the answers and the advice you need – no matter if you're an expert or just starting out.

6. WARRANTIES & SERVICE AGREEMENTS.

Like our ExpressCare, which insures you guaranteed repair or replacement of a defective product within 72 hours. Call for complete details.

Pull a Fast One and Get a \$346 Value – Free!

TEXAS
INSTRUMENTS

NEW TURBO



FREE Adobe Type
Manager & Garamond
Font with every Turbo
\$346 Value

\$1,995

TI microLaser TURBO – Fast 9ppm engine, with Postscript
Level 2 RISC processor, 300 dpi, 35 PostScript fonts and 2.5 meg RAM standard

Get Texas Instruments Speed at Express Direct Prices



TI microLaser Plus PS/17

FREE
AppleTalk
Interface
Included on
Every
Model

WE STOCK ALL TI ACCESSORIES

TI microLaser Plus PS/17 9ppm engine, 300 dpi, 17 PostScript fonts	\$1,245
TI microLaser Plus PS/35 9ppm engine, 300 dpi, 35 PostScript fonts	\$1,565
TI microLaser TURBO XL 16 ppm Turbo microLaser PS/35 XL	Call
TURBO Upgrade Kit Upgrade microlaser or microLaser XL to Turbo	Call

BUY TEXAS INSTRUMENTS DIRECT. Now you can get the complete line of quality TI laser printers at direct prices. **E** Express Direct has them in stock and priced to move. So before you buy from just anybody, call us for the direct price.

Express Hours (central time):
M-F 8am-7pm; Sat 10am-2pm
24hr Fax, 7 days/week



"The Mac Systems Company"

International Orders Shipped Daily • FAX 312.549.6447

1801 W. Larchmont Ave. • Chicago, IL 60613 USA • 312.549.0030

CIRCLE 125 ON READER SERVICE CARD.

1-800-535-3252

Ref: 15

Optical



MACINTOSH CPUs

Call for pricing on new Macs.

We can help you design your entire system. Just give one of our sales consultants a call.



THIRD WAVE OPTIDISK 128

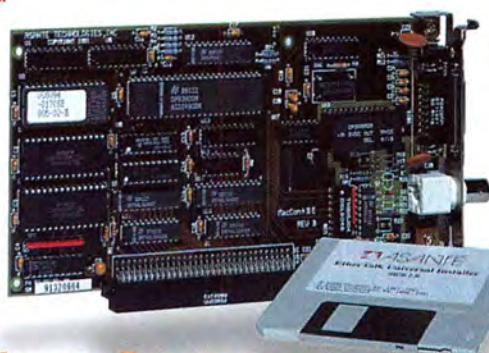
The new removable standard!

128MB per cartridge at only 30% the media cost of SyQuest! Plus the data reliability inherent in magneto-optical technology. Our Sony based drive is only \$1599 and cartridges are only \$59. Ask about our special offer for qualified service bureaus!

Rated Number One by MacUser

5 Year Warranty

Thick/Thin or Thick/10T	189.00
Thick/Thin/10T, 64K	229.00
Friendly Net/Thin or 10T	229.00
10T 12 port hub	529.00
10T 8 port hub	299.00
Thick to 10T adapter	99.00
SCSI Ethernet	from 299.00
Dayna Etherprint	335.00
Dayna Etherprint Plus	605.00
16MHz 882 for LC Ethernet	49.00
20MHz 882 for IIsi Ethernet	69.00



CACHE CARDS, ACCELERATORS, AND COPROCESSORS



Cache cards from Logica speed up your IIsi or IICI by 40 percent! The LogiCache IIsi plugs into the IIsi slot or into the Logica Dual Slot Adapter for use with SE30 or IIsi expansion cards. Logica math coprocessors for LC, Classic II, and IIsi speed math calculations by over 100 percent. For maximum performance, choose '030 accelerators from Applied Engineering and Daystar, or '040 accelerators from Fusion Data and Radius.

TokaMac 040

Accelerators

rated faster

than the Quadra

in three out of

four benchmarks.

MacWeek - 10/22/91

LogiCache IICI	159.00
LogiCache IIsi	189.00
IIsi Dual Slot Adapter	59.00
20 MHz Math chip for Adapter	89.00
DayStar PowerCache 33,40,50 MHz	CALL
DayStar PowerCache above w/882	CALL
Radius Rocket and Radius Rocket 25i	CALL
Applied Transwarp 040	1929.00
Applied Transwarp LC 33,40,50 w/882	CALL
TokaMac 040 Accelerators for the LC, IIsi, SE 30, IICI, and the Mac II FX	CALL
16 MHz 882 CoProcessor for LC	89.00
16 MHz 882 CoProcessor for Classic II	89.00

ASANTE ETHERNET FROM \$169



DISPLAY SYSTEMS

SuperMatch color displays 17 - 21 inches.

Spectrum and Thunder video cards.

VideoSpigot, VideoSpigot Pro, Spigot and Sound, Spigot and Sound Pro. Radius Precision Color products, Radius Pivot, Color Pivot.

We are authorized resellers of Radius, RasterOps, and SuperMac.

Call for latest prices on video.



THIRD WAVE

1(800)448-0404

STORAGE SYSTEMS

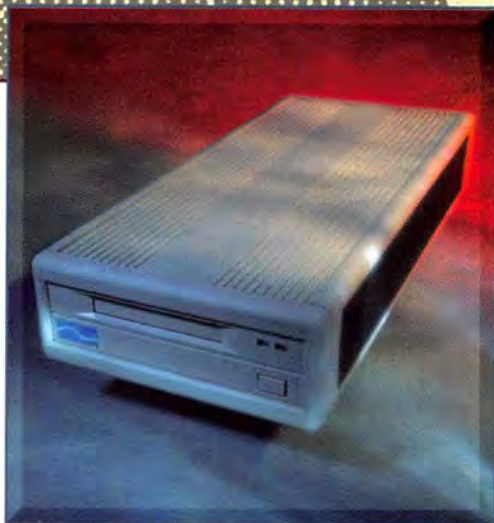
SyQuest, Optical, and DAT available
internally for the Quadra 900!

REMOVABLE MEDIA

OptiDisk 600	It's a SONY!	2895.00
OptiDisk 1000		3895.00
45 SR (SyQuest) w/cartridge		475.00
88 SR (SyQuest) w/cartridge		869.00
DATadrive 2GB		1395.00
DATadrive 5GB		1595.00

DISK DRIVES

	INTERNAL	EXTERNAL
120 MB	449.00	539.00
240 MB	719.00	809.00
520 MB	1299.00	1399.00
650 MB	1399.00	1499.00
1000 MB	1999.00	2099.00
1300 MB	2599.00	2699.00
1700 MB	CALL	CALL



Drive Prices guaranteed to be at or below listed prices. Call for latest.

All of our DAT drives include
Retrospect 1.3, one DAT cassette,
one DAT cleaning cassette, and
your choice of SCSI cable.

MEDIA

80 MB Tape for Teac	17.00
150 MB Tape for Teac	24.00
SyQuest 45 or 88 MB cartridge	88.00/115.00
DAT cassette 60 or 90 meter	17.00/29.00
Optical cartridge (ISO) 512 kb/sector	125.00
Optical cartridge (ISO) 1024 kb/sector	125.00
Optical cartridge for Tahiti	269.00
Optical cartridge 128 MB	59.00

A MacWorld Favorite!

"Quietest" — March '91

"One of the best manuals"

"Highest SCSI Eval. Read/Write"

— September '91

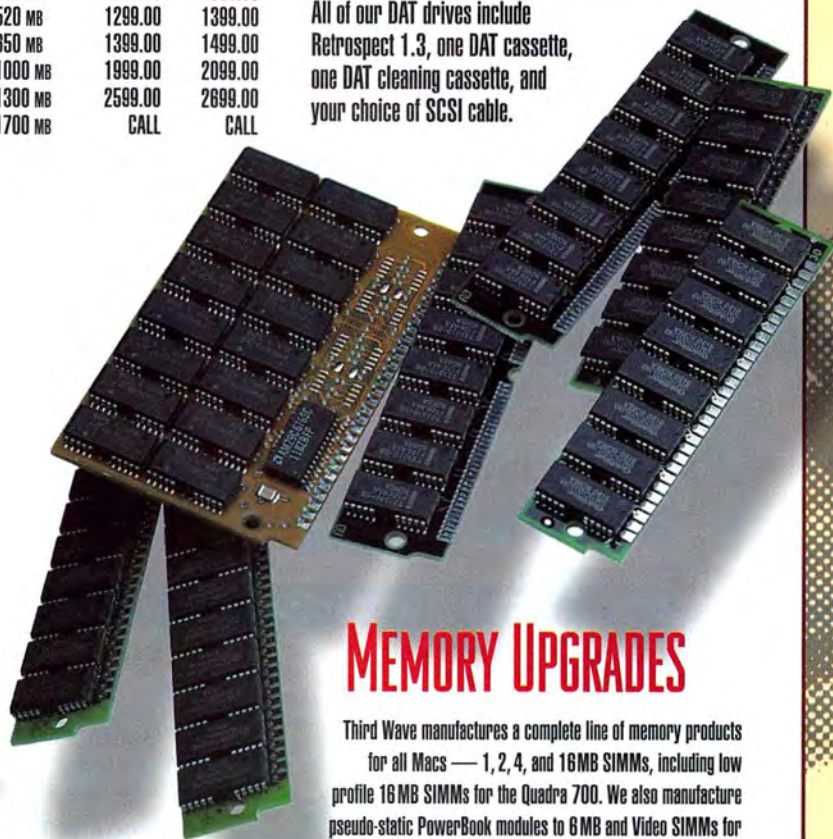
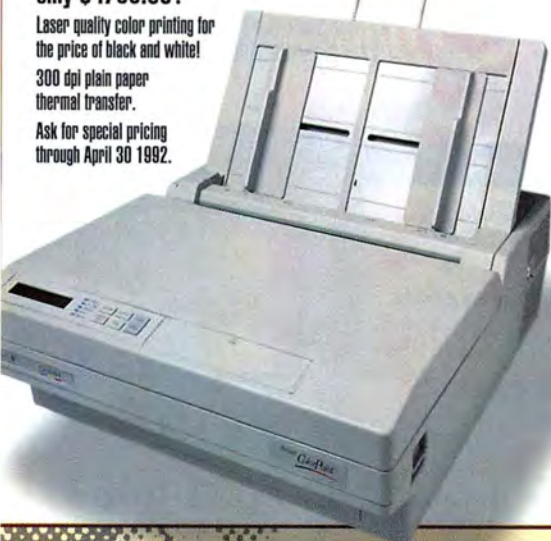
SEIKO PERSONAL COLORPOINT

only \$4799.00!

Laser quality color printing for
the price of black and white!

300 dpi plain paper
thermal transfer.

Ask for special pricing
through April 30 1992.



MEMORY UPGRADES

Third Wave manufactures a complete line of memory products
for all Macs — 1, 2, 4, and 16MB SIMMs, including low
profile 16MB SIMMs for the Quadra 700. We also manufacture
pseudo-static PowerBook modules to 6MB and Video SIMMs for
the LC and Quadra! Prices change often — call for the latest!

MAC DIRECT

Specialists in Mac Storage

Monitor Special!

SONY 20" TRINITRON...\$1898
Sampo 19"\$698

- Two Page displays
- Perfect for DTP & CAD/CAM
- Include Interface cards



- All 3.5" Drives are available in zero footprint (including a 40 watt power supply, and dual AC outlets), or micro cabinets as well as internal for most Mac's.
- All 5.25" Drives are available in zero footprint external (including a 65 watt power supply, cables, and ext. terminators) or as internals for the Mac II, IIfx, and IIfx.

Fujitsu Drives

		Internal	External
45 MB	3.5" Low Profile/, Low Power 3yr warr, 50,000 MTBF	\$218	\$278
90 MB	3.5" 3yr warr, 50,000 MTBF	\$278	\$348
135 MB	3.5" 3yr warr, 50,000 MTBF	\$378	\$448
185 MB	3.5" 3yr warr, 50,000 MTBF	\$498	\$568
330 MB	3.5" 5 yr warr., 200,000 MTBF* 9ms Access	\$1128	\$1198
425 MB	3.5" 5 yr warr., 200,000 MTBF* 9ms Access	\$1198	\$1268
520 MB	3.5" 5 yr warr., 200,000 MTBF* 9ms Access (The Fastest 3.5" Available!)	\$1258	\$1328
680 MB	5.25" 16ms 5 yr warr., 200,000 MTBF*	\$1288	\$1388
1.2 Gig	5.25" 11.5ms 5 yr warr., 200,000 MTBF* (MacWorlds Fastest Gig!)	\$1948	\$2028
2.06 Gig	5.25" 11ms 5 yr warr., 200,000 MTBF* (5,400RPM, Fast SCSI)	\$3498	\$3598

Hitachi Drives

		Internal	External
425 MB	3.5" 5 yr warranty 13ms 150,000 MTBF*	\$998	\$1098
1.6 Gig	5.25" 5 yr warranty 12ms 150,000 MTBF*	\$2698	\$2798

* Mean Time Between Failure is the average life expectancy of a drive.

DAT Tape Backup

SonyDat 2.1 Gig Capability\$1248
WangDat 2.1 Gig Capability\$1498
ArDat 2.1 Gig Capability\$1398

- Up to 10 mb per minute backup time
- Includes SoftBackup II for Fast network and unattended backup capabilities

SyQuest 44MB & 88MB Removables

44MB Removable\$448.00
88MB Removable\$648.00

- 19ms Access time
- Both Drives include Cartridge
- Dual AC Outlets, 40 Watt power supply
- SCSI Select and 2 Year Warranty



Ricoh Optical

600mb Optical.....\$1998.00!

- Read write reliable storage
- Great for archiving, color scans, etc.
- Includes cartridge.
- Available in ISO and non-ISO

Toshiba CD ROM

Toshiba 3301\$538

- Includes driver CD carrier and cables
- 325ms access time
- MacWorld and MacUsers Highest Rated CD-ROM!



UMAX 600 DPI Color Scanner

UC-630 & PhotoShop\$1298.00

- 8 1/2 x 14 Scanning area • Rated fastest by MacUser(Dec '91)
- Rated four mice by MacUser (Dec '91) • Includes Adobe Photoshop
- "Boasts the highest vertical resolution" MacUser 12/91

NuDesign/Tamarack 600 & PhotoShop.....\$1148.00

- 8 1/2 x 11.75 Scanning area • Rated four mice MacUser(Dec '91)
- Includes Adobe Photoshop • "Produced the best image..." (Dec '91)
- "Its hardware is impressive" "At the top of the heap" (Dec '91)

Conner Drives

		Internal	External
C42 MB 3.5" LPS		\$238	\$298
C 85 MB 3.5" LPS		\$298	\$378
C 120 MB 3.5" LP		\$3428	\$498
C 170 MB 3.5" LPS		\$548	\$598
C 212 MB 3.5" LPS		\$648	\$728



14" DirectColor \$298

The GoldStar 14" is plug compatible with IIsi, CI and the LC.
The DirectColor 14" is plug compatible with the LC only.
The Sony 1320 is plug compatible with the LC only.
The 16" Philips includes an 8Bit Board.

14" & 16" Monitors!

14" GoldStar Color.....\$368
14" DirectColor\$298
14" Sony Trinitron.....\$498
16" Philips.....\$898

20" Monitors!

20" SONY TRINITRON Color
w/RasterOps 8Bit.....\$1898
With 24Bit.....\$2898

20" Sampo Mono and Greyscale
W/ 1Bit Mono Board\$698
W/ 8 Bit Grey Scale Board.....\$998

20" Ikegami Trinitron Color
w/RasterOps 8Bit.....\$2398
With 24Bit.....\$3198



MAC DIRECT
Specialists in Mac Storage

60 East Chestnut - 145, Chicago, IL 60611

Visa, Mastercard, Amex, COD, Telecheck Approved Checks, Gov., Corp., Univ., P.O.s welcome All new Drives, Preformatted with latest stable system software, Factory warranty, Bracket, cables and software included/30 Day Money back Guarantee on all drive products. Prices, terms and availability subject to change without notice

CIRCLE 106 ON READER SERVICE CARD.

800-621-8467

Hours: 8:30 - 8:00 CST, Saturdays 10:00 - 4:00
Technical Service and Order
Tracking call: 312-664-8225

Maya Knows...

Call us when you need expert help.

Maya
Computer

Maya Modems

Maya DataFax 24/96

V.42bis, MNP5

Features:

- 2400 bps data modem
- 9600 bps send/background receive fax
- CCITT V. 22bis/V. 22/V. 21
- Maxfax fax software
- MACKNOWLEDGE™
- Integrated modem cable
- 5 year warranty

\$199

5

Maya Data 2400.....99
Maya Data 2400 V.42bis129

Maya DataFax 96/96

V.32bis (up to 14,400 bps)

Features:

- 9600 bps data modem
- 9600 bps send/receive fax
- CCITT V. 22bis/V. 32bis
- Maxfax fax software
- Telecom software
- Hardware handshaking cable
- 5 year warranty

\$459

Maya Data 9600 V.32bis.....399



Modems

Hayes

Ultra Smartmodem 9600 V.42, V.32.....699
Ultra Smartmodem 14400 V.32 bis, V.42 bis.....949
Smartmodem Optima 9600.....556

Prometheus

9600M-EC V.32, V.42bis.....389
24/96 Remote Fax, MNP5, (battery).....219
Home Office Ultra 9600, V.32bis, V.42bis.....499
MNP5, S/R Fax, Voice Mail capability.....499
Home Office, 2400, V.22bis, V.42bis.....259
MNP5, S/R Fax, Voice Mail capability.....259

Shiva

Net Modem 2400bps.....389
Net Modem / E 9600 V.32 MNP5.....1949
Net Modem V.32, MNP5 9600bps.....1349

Telebit

Q Blazer 9600 V.32bis V.42bis MNP5.....569
T1600 9600 V.32, V.42, ASync, Sync.....499
T2500 19,200 V.32, PEP, V.42bis, MNP5.....675
T3000 14,400 V.32, V.32bis, V.42bis.....675

US Robotics

Courier HST 14,400 bps V.42bis.....638

11 CD's for \$200

CD Super Bundle!

Buy any CD-ROM Drive in this ad and get these 11 CDs for \$200!

Wayzata
CD Fun House.....65
Washington Times & Insight on the News.....149
Gaia/Environmental Resources.....249
EPS Professional.....299
PhotoBank.....185

List \$
CMC
Shakespeare.....30
Audubon Birds of America.....50
Sherlock Holmes.....50
Mammals.....30
Family Doctor.....90
ICP - Macintosh Software Reference Database.....49

List price Total.....1235
You Pay.....\$200
You Save.....1035

Maya
Computer

CD

Drives

Chicon CDC-431 with remote control.....599
CD Technologies CD-Porta Drive 325ms.....599
Toshiba XM3301A 325ms.....649

Toshiba XM3301A 325ms \$649

NEC

NEC CD Gallery™

With 7 of today's most popular and innovative interactive CD-ROM software programs.

Includes:

- NEC CDR-73 or CDR-36 Drive
- KOSS SA20 Speakers
- Headphones
- Mediagenic - Cosmic Osmo
- Warner - Beethoven's 14th String Quartet
- Discs Books - Cinderella
- The Time Table of History Science and Innovation
- New Grolier Electronic Encyclopedia
- The Software Toolworks World Atlas
- Time - Desert Storm

7 CD titles, 2 speakers & headphones with CDR-73 \$779

7 CD titles, 2 speakers & headphones with CDR-36 \$539

NEC Drives without bundle:
NEC Intersect CDR-73 / 300ms.....599
NEC Intersect CDR-73M/280ms.....665
NEC Intersect CDR-36M / 450ms.....449
CDR-36 w/ Type Gallery PS 500ms.....459

Call Mon - Fri 9-8 / Sat 10-4
Waitsfield, Vermont 05673
802-496-6982 • 802-496-8110 FAX

800-541-2318

Maya
Computer

MEDIA

Verbatim Optical 128 mb 3.5" Optical Media

5.25" Optical Media \$117
1024 bps or 512 bps

\$53

- Disks**
- Sony, DS 800k, bulk (50).....26
 - Sony, HD 1.4m, bulk (50).....58
 - Sony, DS 800k, boxed (10), branded.....9
 - Sony, HD 1.4m, boxed (10), branded.....17
 - Platinum, DS 800k, bulk (50).....22
 - Platinum, DS 800k, bulk (50), formatted.....28
 - Platinum, HD 1.4m, bulk (50).....45
 - Platinum, HD 1.4m, bulk (50), formatted.....59

Backup Tapes

- TEAC CT600H 155 mb.....31
- TEAC CT600H 60 mb.....22
- Sony
- 40 mb DD0240 (DC2000).....16
- 600 150 mb DC6150.....23
- 600 3M Tape DC6320.....30
- Sony DAT Tape 60M 1.2 gb.....19
- Sony DAT Tape 90M 2.2 gb.....25
- Sony Exabyte 54m, 8mm.....17

Removable Cartridges

- SyQuest 44 mb cartridge.....69
- SyQuest 88 mb cartridge.....125
- Mass Micro Pre-formatted 44 mb.....88
- Mass Micro Pre-formatted 88 mb.....149
- Ricoh 50 meg Cartridge.....105
- Bernoulli 20 meg 5.25" - 3 pack - Gold.....196
- Bernoulli 44 meg 5.25" - 3 pack - Gold.....304
- Bernoulli 90 meg 5.25" - 3 pack - Gold.....469
- Syquest Cleaning Kit.....20
- Bernoulli Cleaning Kit.....37

Optical Media

- Canon Optical Cartridge MD-502M.....188
- Sony 5.25" Optical Cartridge.....149
- Mass Micro 128 mb 3.5" Optical Cartridge.....53
- Sony 5.25" Optical cleaning cartridge.....79
- Toshiba 5.25" 1024 or 512 bps Optical.....117

SONY

5.25" Optical Media \$149

30 Year Warranty!

3.5" Optical Media \$55
128 Megabytes!

CD-ROM Specials

While Supplies Last!

- | | | |
|------------------------------------|-----------------------------------|----------------------------------|
| Scenic & Nature III.....39 | Microsoft Office.....399 | Wayzata NA Fax.....89 |
| LinguaRom (old version).....199 | NEC PhotoGallery.....249 | Wayzata Publique Art.....29 |
| Educator Desktop Publishing.....39 | NEC Image Gallery.....249 | Wayzata About Cows.....20 |
| Educator Sports.....39 | Wayzata QuickArt.....89 | Wayzata Middle East Diary.....29 |
| Gazette Sound FX.....99 | Wayzata US Civics.....29 | Wayzata Off Line.....39 |
| Gazette Ocean Imagery.....59 | Wayzata Seal in US govt.....29 | Wayzata Korea.....29 |
| Int'l Graphics Library.....159 | Wayzata Vietnam.....29 | Wayzata US Presidents.....29 |
| ImageClub Art & Type.....49 | Wayzata Officer's Bookcase.....29 | Wayzata Impressionism.....29 |
| Media Clip Art.....289 | Wayzata Sporting News.....29 | Wayzata Civil War.....29 |
| Meridian Grips 2.....39 | Wayzata USA Fact Book.....29 | World Fact Book 1991.....35 |

TRADE-UP Your Old Mac

Save hundreds of dollars on your next Mac by choosing a fully-guaranteed used machine over a new one, and add new or used peripherals, memory and hard drives for even greater savings.



Call Maya's BBS:
802-496-9330

Get the New Maya Catalog

Find out why the Maya Catalog has become a much sought after favorite of power users, consultants and Mac enthusiasts everywhere.

FREE

YOU CAN'T MISS WITH MACTEL



STRAIGHT FROM THE MANUFACTURER. MacTel Technology Corporation is a global company designing, manufacturing, and distributing a wide array of Macintosh peripherals. State-of-the-art production, research and testing assures the finest quality. Buying direct assures you savings and service!



VISIONPRO COLOR MONITOR SYSTEMS

• VisionPro Ikegami Systems:
8-bit SP 20" Trinitron\$2497
24-bit SP 20" Trinitron\$2997
Editors' Choice, MacWorld 1/92

• VisionPro Sony System (Multiscan)
8-bit SPS 20" Sony Trin. (ODM 1936)\$3297
24-bit SPS 20" Sony Trin. (GDM 1936)\$3797

All VisionPro systems come with tilt/swivel monitors, in 110v or 220v.

MONITORS

• Apple 13" RGB Trinitron\$729
• Seiko 1445 14" Trinitron\$629
• Sony 16" Trinitron (Multiscan)\$1297
• Ikegami 20" CT20 Trinitron\$1897
• Sony 20" GDM 1936 Trinitron\$2497



INDEX HARD DRIVES & STORAGE SOLUTIONS

All Index drives come preformatted, support partitioning, password protection, and are A/UX and System 7 compatible. We supply all necessary cables & brackets, and FREE 14Mb public domain software. Plug them in and go!

Index Hard Drives

Quantum drives Index 3.5"	Int	Ext
• 52 Mb, 12 ms, Slimline	\$259	\$349
• 105 Mb, 12 ms, Slimline	\$389	\$449
• 240 Mb, 12 ms	\$699	\$789
• 425 Mb, 12 ms	\$1397	\$1449
• Large capacity external drive		Call

Removable-Optical-Tape

• Index 45R \$499
With 1 cartridge
• SyQuest cartridge SQ400\$69
• 2 GB DAT drive \$1449
w/Retrospect software and 1 tape
• 2 Gb DAT tape, 90m\$39
• 3.5" Index 128 Mb Optical\$1499
• 3.5" 128 Mb Optical disk\$60
• 650 Mb Sony Optical w/ 1 cartridge\$2897

INDEX GOLD MEMORY MODULES AND UPGRADES

A TRACE OF GOLD

Only MacTel Technology manufactures SIMMs for the Mac w/gold contacts, traces & leads. Immune to oxidation & corrosion, gold is the most efficient & effective conductor in existence. Each surface mounted SIMM tested, coded, backed with lifetime warranty!

• 1 Mb, 70/80 ns Index Gold™	\$37.95
• 1 Mb FX & NTX, 70/80 ns Index Gold™	\$38.95
• 2 Mb, 70/80 ns	\$84
• 3 Mb Classic Index Gold™	\$109
• 4 Mb 70/80 ns Index Gold™	\$139



• 8 Mb 70/80 ns	\$499
• 16 Mb 70/80 ns	\$747
• PowerBook 2 Mb (100,140,170)	\$195
• PowerBook 4 Mb (140,170)	\$375
• PowerBook 6 Mb (140,170)	\$595
• 1 Mb TI MicroLaser PS 17/35 & XL Gold™	\$69
• Mac LC V-RAM Index Gold™	\$69
• Quadra V-RAM Index Gold™	\$69

• Classic II Index Gold™
MathMate NEW!\$79
On-board 68882/16 MHz math co-processor for Classic II. FREE! Benchmark software included.

• Mac LC Index Gold™ MathMate\$79
Accelerate math-intensive operations on your LC by up to 39% with a 68882/16 MHz math co-processor and get a 15% overall CPU improvement. FREE! Benchmark software included.

• Mac IIsi 030 Index Gold™
Direct Slot Interface\$99
On-board 68882/20 MHz math co-processor with adapter for Macintosh IIsi. FREE! Benchmark software included.

Please mention type of Macintosh when ordering by fax!

Fax us your name and address for our latest catalog listing our full product line.

3007 North Lamar,
Austin, Tx 78705
512/451-2600
512/451-3323 FAX

To order from Europe, 512 / 451-2600
Swiss office: 042/36-44-33

ORDERING:

No surcharge for Visa or MasterCard. European banking service available. University, government, military NET 30 and corporate (on approval) purchase orders accepted. Please allow 10 days for personal and company checks to clear. Maximum on COD order of \$3000. Returned merchandise must be authorized. To expedite processing, call 512/451-2600 for RMA number. Defective merchandise will be replaced or repaired at MacTel's discretion. Shipping and handling charges are not refundable. Products returned without RMA number will be refused. Any products returned for any reason (RMA, warranty service, etc.) must be in original shipping container including all packing materials. All products are subject to a 15% restocking fee. All products subject to availability. All prices are subject to change.

MONITOR SYSTEM SPECIAL

Special price on our 24-bit VisionPro Ikegami System!
Includes: 24 bit color card
20" Ikegami monitor

MACWORLD 1/92, ON THE VISIONPRO MONITOR SYSTEM:
"...a surprise bargain...the [VisionPro] shows beautiful, rich colors, and sharp text."
Chosen for its clarity and price!

WAS \$3349
NOW **\$2997**

CPU's

• Mac LC 4/40	\$179
• Mac IIsi 3/40	\$219
• Quadra 700 4/0	\$439
• Quadra 900 4/0	\$549
• PowerBook 100 4/40	\$229
• PowerBook 140 4/40	\$319
• PowerBook 170 4/40	\$399

INDEX EXTENDED KEYBOARDS

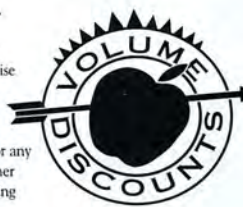
Index ADB keyboards have a 105-key layout, 15 function keys, cursor control keys & number pad. Foreign language keyboards are bundled with their respective system software.

English\$99
French, German,
Swiss-German, Spanish\$119



mactel
TECHNOLOGY CORPORATION

1-800-950-8411



YOUR ONE SOURCE FOR COMPLETE MAC SOLUTIONS

1 (800) 7-ADVANCE • 1 (800) 723-8262

SERVICE

- Friendly, knowledgeable sales & support consultants ready to serve you, with Toll-Free Ordering and Tech Support
- Express Delivery Available anywhere in the world
- Once you place your order, your system will be configured to YOUR needs, then burned in and tested before shipped
- Education, Government & Institutional P.O.s Accepted
- EXPRESS 2-DAY SERVICE on ALL SOFTWARE PACKAGES for only \$6



SUPPORT

- All purchases are backed by our 30-day satisfaction money-back guarantee and 1 full year limited warranty (see details at bottom)
- Express Service Plan Available - Offering 72-Hour Complete Turnaround (Repair or Replacement) on all Hardware
- Buy with confidence, as ABC is a strong, rapidly growing company with both Mac & PC Experience



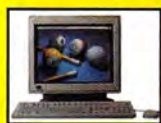
LEASING

ABC LEASING... TOMORROW'S TECHNOLOGY AFFORDABLE TODAY! CALL OUR LEASING DEPARTMENT ABOUT:

- INTERNATIONAL LEASING
- CORPORATE EXPRESS LEASE
- PERSONAL LEASING
- BUSINESS LEASING

\$ 25,000 Business Lease Line of Credit Available in 15 Minutes, Call Today!

Monitors



E-MACHINES \$2190
NEW!! T-16 II or \$83*
w/Futura SX SYSTEM (p/mo. on lease)
24-Bit Accel. Card w/New Dual Resolution Trinitron 16" Color Monitor

Sale price/Lease price

IKEGAMI CT-20 TRINITRON 24-BIT SYSTEM \$2849 / \$108 mo.*
Quality 24-Bit 20" Trinitron System at Unbeatable Price!
IKEGAMI 19" GRAY SCALE SYSTEM \$1295 / \$49 mo.*
SEIKO 14" COLOR MONITOR \$555
Sony Trinitron Quality in 14" Mac Monitor
SIGMA FULL PAGE GRAY SCALE MONITOR \$555
Sharp Image & Lower Emissions Portrait Monitor

*Please call for details

Software

ADOBE ILLUSTRATOR \$369
ADOBE PHOTOSHOP \$425
ALDUS Pagemaker 4.2 (NEW!) \$496
CLARIS MACWRITE II (GREAT NEW PRICE!) \$95
CLARIS WORKS \$195
CLARIS FILEMAKER PRO \$199
QUARK XPRESS 3.1 (NEW!) \$555
FRAME FRAMEMAKER \$565

Printers



QMS
QMS PS-815 MR \$3895
600 DPI or \$139*
LASER PRINTER (p/mo. on lease)
QMS PS-410 \$1599 / \$64 mo.*



NEWGEN PS 400P (400DPI)
\$1795 / \$64 mo.*



HP COLOR DESKWRITER C
\$745

Sale price/Lease price

SEIKO PERSONAL COLORPRINT PS \$4595 / \$139 mo.*



SEIKOSHA MAC PRINTER \$195
ImageWriter II-Compatible

* On Lease - Please call for details

WE FEATURE THE FOLLOWING PRODUCTS AT OUTSTANDING PRICES:

SUPERMAC

E-MACHINES
E-Machines of work™

QMS

Quark

ADOBE
Adobe Systems Incorporated

CLARIS

UMAX
Maximize your image

MICROTEK
Better Images Through Innovation

RasterOps

SIGMA DESIGNS

NEC

hp

Quantum

DAYSTAR
DIGITAL

SONY

DOVE
CAPACITOR & COMPONENTS

Farallon

CO STAR

KENSINGTON

Microsoft

Large Screen Monitors, Multimedia, PowerBook Video, Accelerated Video Boards

16" & 19" Monitors, Accelerated Video, Multimedia Products

Color Printers, High Resolution PostScript Laser Printers, Personal Laser Printers

Quark XPress Software

Adobe Premiere, Illustrator, PhotoShop, ATM, Type Align, Whole Library of Fonts

ClarisWorks, MacWrite II, MacDraw Pro, FileMaker Pro, Claris CAD, HyperCard, etc.

High Resolution Gray Scale and 24-Bit Color Scanners

High Resolution Gray Scale and 24-Bit Color Scanners, Laser Printers

Color Monitors, Accelerated Video Boards, MultiMedia, Color Calibrators, Color Printers

Monochrome Full Page and Two Page Monitors, Full Page Monitor for PowerBook

Aldus Pagemaker, FreeHand, Persuasion, Gallery Effects, PrePrint, SuperPaint, etc.

DeskWriter Inkjet Printers, Laser Printers

Hard Drives

Acceleration Boards and Cache Cards

Macintosh Compatible Notebook Computers

Internal and External Modems and Fax Modems, Network Modems, Acceleration Products

High Performance Laser Printers

Networking Products

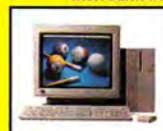
Envelope Printers, Label Printers

Stands, Accessories

Microsoft Word, Excel, Project, Works, Office

Mac Systems

ALL MAC SYSTEMS ARE FORMATTED WITH AND INCLUDE CASA BLANCA WORKS' DRIVE 7 SOFTWARE



APPLE QUADRA POWER SYSTEM
Mac Quadra 700 8MB RAM/210MB Hard Drive, E-Machines T16 16" Trinitron Color Monitor w/ 24-Bit Color, Extended Keyboard
\$6755
or \$154 mo. on lease*



APPLE Mac IIx TOTAL POWER SYSTEM
Mac IIx 5MB RAM/120MB HD, Seiko 14" Trinitron Color Monitor, NewGen 400P 400DPI Laser Printer w/Cables, UMAX 24-Bit Color Scanner w/Adobe PhotoShop, Keytronic Ext. Keyboard, Quark XPress, Adobe Illustrator, ClarisWorks, & Norton Utilities.
\$8095 / or \$211 mo. on lease*

APPLE MAC IIx SYSTEM \$3850 / \$116 mo. on lease*

5MB RAM/120MB HD, 14" Seiko Trinitron Color Monitor, Ext. Keyboard

APPLE MAC IIx SYSTEM \$3185 / \$97 mo. on lease*

5MB RAM/120MB HD, 14" Seiko Trinitron Color Monitor, Ext. Keyboard



POWERBOOK DREAM DEAL
Mac Powerbook 170 4/40 (25MHz 68030) w/ Internal Modem, 8-Bit Color Video Adapter, E-Machines T16 16" Trinitron Color Monitor, HP Color Deskwriter & ClarisWorks Software
\$6850 / or \$177 mo. on lease*
with 8MB RAM/80MB INT HD
\$7895 / \$204 mo. on lease*

LEASING SPECIALS

MAC IIx SUPER SYSTEM \$292 mo.*
Mac IIx 5/120 HD, E-Machines T16 16" Color Trinitron Monitor w/Accel. 24-Bit Color, Ext. Keyboard, QMS PS-410 Laser Printer, UMAX UC-630 Color Scanner w/ Adobe PhotoShop, PLI 44-MB Remov. Cart. Drive, Adobe Illustrator, Quark XPress
QUADRA 700 DELUXE SYSTEM \$341 mo.*
Mac Quadra 700 8MB RAM/120 HD, E-Machines T16 16" Color Trinitron Monitor w/On-Board 24-Bit Color, Ext. Keyboard, QMS PS-815 MR Laser Printer, PLI 44-MB Removable Cartridge Drive, Adobe Illustrator, Quark XPress
LASERMASTER 800 (True 800x800 res., 6MB RAM, 8PPM) \$292 mo.*

0% Down & No Payment for 90 Days On Lease Specials



FIRST MAC COMPATIBLE NOTEBOOKS!
OUTBOUND 2030E \$2825 / \$75 mo.*
25MHz, 4MB RAM, 60MB HD, Floppy Drive
2030E w/80MB Hard Drive \$3065 / \$81 mo.*

Peripherals



UMAX UC-630 \$1325
24-BIT COLOR or \$50*
SCANNER (p/mo. on lease)
INCLUDES ADOBE PHOTOSHOP

MICROTEK 600ZS 24-BIT COLOR SCANNER \$1395 / \$52 mo.*
Full True-Color Flatbed Scanner w/Adobe PhotoShop

* Please Call for Details.

C.O.D. ORDERS: Add \$5.00 on Federal Express. Money orders & Cashiers Checks are accepted, no company or personal checks please.
Shipping: Please Call for shipping methods and rates. California residents (only) add 8.25% for sales tax.
Mail Order: Please send money orders or cashier's check for faster service. Allow 10 days for personal checks to clear. If ordering by credit card, include expiration date & billing address.
Return Policy: Call Customer Service at (213) 325-1422 to obtain a return authorization. Returned

products must be in original condition and packaging and must be sent back within 30 days of purchase date. 15% Restocking Fee on opened and used Printers.
Conditions: Prices are subject to change without notice. All items subject to availability. We reserve the right to refuse to sell to anyone.
Credit Cards: We accept Visa, Master Card, American Express and Discover.
Not responsible for typographical errors. All information presented believed accurate at time of printing. Information subject to change without notice.



(800) 274-7747

(800) 723-8262 / (800) 274-7747
(310) 325-1422 / FAX: (310) 325-4073
23510 Telo Ave. #5, Torrance, CA 90505

CIRCLE 176 ON READER-SERVICE CARD.

**ADVANCE
BUSINESS
CENTER**

MACINTOSH SOFTWARE PROTECTION



Don't lose software profits—use **SecuriKey®** — a unique hardware device that prevents unauthorized use and duplication of software.

- DESIGNED FOR THE MACINTOSH
- Allows unlimited backup copies
- Does not permit duplication
- Can record software usage
- Available with custom logos
- Variety of programmable options

**CALL US
TODAY!**
**1 (800)
456-2587**

Serial device now available



150 Wright Brothers
Drive, Suite 560
Salt Lake City,
Utah 84116
FAX (801) 575-6621

CIRCLE 64 ON READER SERVICE CARD.

Changing your mailing address?

It's a simple procedure to ensure that your next issue of MacUser will catch up with you as soon as you move.

Please send your **NEW** address PLUS your current mailing label to:

MacUser
P.O. Box 56986
Boulder, Colorado
80322-6986

Please allow up to 60 days for change of address to take place.

Syquest™

External

44MB w/Cart \$465
Add'l Cartridges \$66

88MB w/Cart \$589
Add'l Cartridges \$99

- 30 Day 100% Guarantee
- Two year warranty on Maxtor and Quantum Series
- One year warranty on Syquest, Conner and Seagate
- Call For Quadra drive Prices
- Lifetime toll-free tech support
- Government and University PO's accepted
- No credit card surcharge on Visa-MC-Amex
- All drives come with Datastor "Advanced User" software
- All prices and availability subject to change without notice.
- Shipping charges nonrefundable.

(800) 338-4273

FAX (303) 442-7985

1/2 Gigabyte King!

HM1.2/15

\$2079

"The superior driver software of the HM1.2/15 speeds it past the other Wren 7 based drives."

"Despite its bargain price, it ranked near the top in all performance tests."
MacUser July 1991

Exabyte

External Tape Backup

8200 2.2GB and Tape \$2199
Additional Tapes \$35
8500 5.0GB and Tape \$3199
Additional Tapes \$39



MacTown
1431 S. Cherryvale Rd.
Boulder, CO 80303

Maxtor®

	Intl	Extl
60MB/17ms	\$244	\$324
80MB/17ms	\$294	\$364
120MB/15ms	\$344	\$454
213MB/15ms	\$584	\$654
340MB/13ms	\$914	\$984
535MB/12ms	\$1699	\$1709
675MB/17ms	\$1354	\$1544
1020MB/13ms	\$1924	\$2029
1500MB/13ms	\$2474	\$2644

Tahiti II Optical Read/Write

	Extl
1020MB/35ms Cartridges	\$3399 \$249

MAYOR'S SPECIAL

MAXTOR 7080S 80MB/17ms
\$294

Quantum

	Intl	Extl
52MB/12ms	\$224	\$294
105MB/10ms	\$344	\$414
120MB/10ms	\$344	\$414
210MB/10ms	\$614	\$684
240MB/10ms	\$638	\$738
425MB/13ms	\$1174	\$1244

Seagate

	Intl	Extl
49MB/28ms	\$234	\$304
426MB/14ms	\$1269	\$1329
670MB/16ms	\$1364	\$1514
676MB/12ms	\$1695	\$1845
1020MB/15ms	\$1924	\$2079
1420MB/15ms	\$2424	\$2574

CONNER

	Intl	Extl
40MB/25ms	\$234	\$304
120MB/19ms	\$384	\$454
200MB/15ms	\$554	\$624
360MB/12ms	\$920	\$1020
540MB/12ms	\$1174	\$1244

CIRCLE 17 ON READER SERVICE CARD.

MAC DEPOT

Lowest Prices • Great Service
Overnight Delivery • 30-Day MBG

1-800-222-2808
Canada Toll-Free: 1-800-548-2512
FAX (213) 542-9998

DAYSTAR

DIGITAL



PowerCache Family
Call

HARDWARE

ACCELERATORS

APPLIED ENGINEERING

TRANSWARP SE 25MHZ	CALL
TRANSWARP LC 25MHZ	635.00

DAYSTAR

POWERCACHE 33MHZ	689.00
POWERCACHE 50MHZ	1359.00

FUSION DATA SYSTEMS

TOKAMAC ELC 25	899.00
TOKAMAC C125	1799.00

RADIUS

ROCKET	1669.00
ROCKET 251	1269.00

Generation Systems



Designer/24 19" 2969⁰⁰

DISK DRIVES & CD ROMS

APPLIED ENGINEERING

1.44MB DISK DRIVE	245.00
-------------------	--------

MASS MICROSYSTEMS

DATAPAK 45	550.00
DATAPAK 88	746.00
DATAPAK MO/128 (OPTICAL)	1589.00
DIAMOND DRIVE 120 PORTABLE	569.00
DIAMOND DRIVE 310	1597.00
DIAMOND DRIVE 510	2045.00
HITCHHIKER 80 (POCKET SIZE)	699.00

IACDEPOT

CDROM W/ SOFTWARE	499.00
-------------------	--------

MICROTECH

CD600 CD-ROM	699.00
EUROPA 60	459.00
NOVA 50	499.00
NOVA 200	925.00
NOVA 400	1539.00

OUR POLICIES

30-DAY MBG APPLIES TO DESIGNATED MANUFACTURERS ONLY
CALL CUSTOMER SERVICE AT (310) 214-0000 FOR A RETURN AUTHORIZATION
ALL RETURNS WITHOUT AN AUTHORIZATION NUMBER (A #) WILL BE REFUSED. RETURNED PRODUCTS MUST BE IN ORIGINAL CONDITION AND PACKAGING AND MUST BE SENT BACK WITHIN 30 DAYS OF OUR INVOICE DATE.
NO REFUNDS FOR FREIGHT CHARGES
PRICES AND AVAILABILITY OF PRODUCT ARE SUBJECT TO CHANGE WITHOUT NOTICE
PERSONAL CHECKS REQUIRE UP TO 10 WORKING DAYS TO CLEAR. INCLUDE NAME, ADDRESS AND TELEPHONE NUMBERS (NO P.O. BOXES PLEASE). IF ORDERING BY CREDIT CARD, INCLUDE EXPIRATION DATE AND BILLING ADDRESS
CALIFORNIA RESIDENTS (ONLY) ADD 8.25% FOR SALES TAX

NOVA 1300	3279.00
-----------	---------

INPUT DEVICES

APPOINT	
MOUSE PEN PRO	69.00
THUMBELINA	69.00
COSTAR	
STINGRAY TRACKBALL	85.00
CURTIS	
MVP MOUSE	85.00
EMAC	
SILHOUETTE TRACKBALL	85.00

24XLI	1989.00
24STV	829.00
CLEARVUE/SD21	1449.00
COLORBOARD 264/SE30	715.00
SEIKO	
CM-1445 HI-RES MONITOR	550.00
SONY	
1304 14" MULTISCAN	599.00
1604 17" MULTISCAN	1199.00

Hewlett-Packard

Deskwriter
with cable \$399.00

Deskwriter C
with cable \$699.00

PAINTWRITER 625.00
LASERJET IIISI 3792.00
SCANJET IIC 1349.00

3-YEAR WARRANTY

KENSINGTON

TURBO MOUSE	105.00
-------------	--------

WACOM

6X9 TABLET	499.00
12X12 TABLET (STANDARD)	715.00
12X12 TABLET (ELEC-STATIC)	785.00

MODEMS & FAXES

DOVE	
DOVEFAX PLUS	350.00
DOVEFAX LAN	485.00
GLOBAL VILLAGE	
TELEPORT / FULL FAX	229.00
POWERPORT / V.32	499.00
MASSMICRO	
MASSFAX 24/96	199.00
PROMETHEUS	
PROMODEM 2400 MINI MODEM	120.00
SUPRA	
FAX/MODEM	195.00
ZOOM	
FX9624 FAX MODEM	135.00

PRINTERS & SCANNERS

GCC TECHNOLOGIES

PLP II	CALL
PLP IIS	CALL
BLP II	CALL
BLP ELITE	CALL
GENERAL PARAMETRICS	
THERMAL COLOR PRINTER	3995.00
NEWGEN - 30 DAY MONEY BACK GUARANTEE	
TURBO PS/300P	1485.00
TURBO PS/400P	1995.00

MICROTEK

TRUE LASER	1345.00
SCANMAKER 600ZS	1389.00
SCANMAKER 1850S	1979.00

QMS

PS-410	1499.00
PS-815MR	3899.00

MONITORS & VIDEO BOARDS

E-MACHINES

E16	1095.00
T16 II	1849.00
FUTURA EX	595.00

ENVISIO (POWERBOOK)

DISPLAY ADAPTOR 2MB	919.00
DISPLAY ADAPTOR 4MB	1229.00

GENERATION SYSTEM

FULL PAGE DISPLAY IISI/IICI	479.00
TV BOARD	159.00
TV BOX	159.00

MASS MICRO SYSTEMS

RIVAL 19" MONOCHROME	995.00
RIVAL 19" GRAYSCALE	1699.00

MICRON

8BIT VIDEO CARD SE/30	279.00
24BIT VIDEO CARD SE/30	399.00

RASTEROPS

24SX	629.00
------	--------

SUPERMAC

THUNDER/24	CALL
VIDEOSPIGOT IISI	379.00
VIDEOSPIGOT NUBUS	449.00

SOFTWARE

BUSINESS

CAERE - 30 Day MBG	
OMNIPAGE	489.00
OMNIPAGE PRO	659.00
CALERA - 30 Day MBG	
WORD SCAN	409.00

WACOM



Call for Pricing

CHIPSOFT

MACINTAX 91	65.00
-------------	-------

CLARIS - 30 Day MBG

CLARIS WORKS	199.00
FILEMAKER PRO	199.00
HYPERCARD	139.00
MACPROJECT II	330.00
MACWRITE II	99.00
RESOLVE	269.00

INTUIT - 30 Day MBG

QUICKEN	45.00
---------	-------

MICROSOFT - 30 Day MBG

EXCEL 3.0	305.00
WORD 5.0	299.00

SYMANTEC - 30 Day MBG

GREATWORKS	199.00
------------	--------

WORDPERFECT - 30 Day MBG

WORDPERFECT V2.03	285.00
-------------------	--------



U MAX



UC - 630

With Photoshop . \$1299.00

DTP & GRAPHICS

ADOBE - 30 Day MBG (Except fonts)

ILLUSTRATOR W/ ATM	369.00
PHOTOSHOP 2.0	549.00
PREMIERE	309.00

ALDUS - 30 Day MBG

GALLERY EFFECTS	135.00
FREEHAND 3.1	389.00
PAGEMAKER 4.2	499.00
PREPRINT	320.00
SUPER PAINT 3.0	135.00

ALTSYS

METAMORPHOSIS PRO	99.00
-------------------	-------

CLARIS - 30 Day MBG

CLARIS CAD	589.00
MACDRAW PRO	269.00

QUARK - 30 Day MBG

QUARK X PRESS 3.1	579.00
-------------------	--------

PowerBook Accessories

See the
new
items!



Microtech 80mb Hard Drive	\$639 ⁰⁰
Tenba Case 415C	\$99 ⁰⁰
Tenba Case 418	\$109 ⁰⁰
Newer 4mb module	\$389 ⁰⁰
Newer 8mb module	\$489 ⁰⁰
POWERPORT V.32	\$499 ⁰⁰
PSI Power Modem	\$215 ⁰⁰

UTILITIES

BERKELEY - 30 Day MBG

AFTER DARK	28.00
MORE AFTER DARK	23.00

CE SOFTWARE - 30 Day MBG

QUICKKEYS 2	93.00
QUICKMAIL TO USER	399.00

FIFTH GENERATION - 30 Day MBG

SUITCASE II	53.00
-------------	-------

NOW SOFTWARE - 30 Day MBG

NOW UTILITIES	79.00
---------------	-------

SALIENT SOFTWARE - 30 Day MBG

AUTODOUBLER	59.00
-------------	-------

SYMANTEC - 30 Day MBG

NORTON UTILITIES	85.00
SAM	65.00

ESTABLISHED 1985

MAC DEPOT

1-800-222-2808

4453 REDONDO BEACH BLVD.
LAWDALE, CA 90260
Canada Toll-Free: 1-800-548-2512

Corporate, educational, and government purchase orders accepted.

Portable Mass Storage Battery Power!!

240MB Batt. Pwr. Hard Disk

Note the compact size of this 240MB, 2lb. fully self-contained hard drive. It will operate for 3 hours on its own internal battery and recharge with any standard AC power cord in only 90 minutes.



Now you can be completely free from the AC wall outlet with plenty of hard disk storage.

50240QP Hard Disk

An exciting feature of this 50MB - 200MB drive is that it will operate on a Mac or a PC compatible or BOTH....just as it is, NO CARDS. Just think about it..... One drive for both Mac and IBM.....

If you travel, transport data, or just want to save desk space, your options are pictured below:



85MB Hard Disk



90MB Bernoulli Cartridge



85MB Battery Power



Sony CD-ROM Drive



Floptical 20MB
(Battery Option)



2000MB Hard Disk Drive



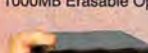
240MB Hard Disk
(Battery Option)



1000MB Erasable Optical



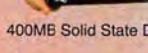
1000MB Hard Disk



400MB Solid State Drive



600MB Tape Drive



Dual 90MB Bernoulli



128MB Erasable Optical
(Removable Cartridge)



Watch out Megadrive!



88MB Syquest Cartridge



(408) 983-1127
fax (408) 243-2885

160 Saratoga Ave. Ste. 38, Santa Clara, Ca. 95051

CIRCLE 74 ON READER SERVICE CARD.

TDK. SALE

Special 5 Box Discount

3.5" DS..... 6.39

3.5" HD.... 9.99

(Special Ends April 30, 1992)

3.5" Double Side Disks

3M.....	7.19
Sony.....	7.19
Maxell.....	7.19
Verbatim.....	7.19
KAO.....	6.69
BASF.....	6.59
TDK.....	6.49
Nashua.....	6.29
Precision.....	4.79

BULK (Sony No-Logo).. .49 ea.

3.5" High Density Disks

3M.....	11.99
Sony.....	11.99
Maxell.....	11.99
Verbatim.....	11.99
KAO.....	11.59
BASF.....	10.99
Nashua.....	10.79
TDK.....	10.19
Precision.....	9.29

BULK (Sony No-Logo).. .89 ea.

"Call" for Data Cartridges,
4mm & 8mm Backup Tapes,
Ribbons, Fax Paper, Laser Toners,
Optical Disks, & 3M Office Products

3M Post-It Pads \$5.99 / doz

Nu-Kote Imagewriter Ribbons.. 3.15 ea.

DISKETTE CONNECTION

(4) Warehouse Locations Nationwide
PO BOX 1674 - BETHANY, OK 73008

EAST

1-800-451-1849

MIDWEST

1-800-654-4058

WEST - HAWAII & ALASKA

1-800-621-6221

Minimum Order \$20.00 NO SURCHARGE on VISA / MC
COD orders add \$4.00 Shipping charges determined
by items and delivery method required by customer
(Prices are subject to change without notice)
FAX ORDER LINE (405) 495-4598

CIRCLE 122 ON READER SERVICE CARD.

Yes, it's true!

Japanese in an English Environment



Sweet JAM 7.0

Japanese Output/Input
Front-End Processor

Features:

- Direct input and output of Japanese characters within conventional application software using an English Mac OS.
- Compatible with System 7.0 and true-type fonts for clean and attractive results.
- Smooth access within the application software in use without requiring any switching.
- Can be used with an ordinary keyboard and can be turned off when not in use.



• In addition to educational applications, its ease and efficiency of use also make it superior for rapidly growing business applications.

• Has supported users in Japan for the past 7 years and presently boasts more than 20,000 users.

(MA) Japanese Language Service Co.
TEL: 617-338-2211 FAX: 617-338-4611

(CA) Qualitas Tradings Co.
TEL: 415-848-8080 FAX: 510-253-1047

A&A CO., LTD.

IMA Bldg., 4-10-14 Takadanobaba
Shinjuku-ku, Tokyo 169, Japan
TEL: 81-3-3360-6541
FAX: 81-3-3360-6532

CIRCLE 30 ON READER SERVICE CARD.

How to succeed in business.



POWER TIE



POWER LUNCH



POWER DRIVE

HARD DRIVES

MB's	Mechanism	Access	Internal	External
42	Seagate	28ms	\$219	\$249
52 ^{PS}	Quantum	17	\$249	\$299
80	Maxtor	19	\$279	\$339
105 ^{PS}	Quantum	16	\$349	\$399
210	Maxtor	15	\$599	\$679
210	Quantum	16	\$629	\$689
320 ^{HI}	Maxtor	14	\$999	\$1049
320 ^{HI}	Micropolis	14	NA	\$1199
520	Fujitsu	12	\$1099	\$1149
660 ^{HI}	Micropolis	16	NA	\$1599
1050 ^{HI}	Micropolis	14	NA	\$2199
1050 ^{HI}	Seagate	14	NA	\$2199
1079 ^{HI}	Fujitsu	12	\$1999	\$2099
1346 ^{HI}	Micropolis	14	NA	\$2699

REMOVABLE

*** SyQuest 44MB	\$449
25ms. Includes 44MB cartridge. Extra Cartridge *79	
*** SyQuest 88MB	\$599
20ms. Includes 88MB cartridge. Extra Cartridge *119	

OPTICAL STORAGE

CD-ROM	\$539
350ms. External. Uses Chinon mechanism.	

TAPE BACKUP

2.0Gig 4mm DAT	\$1495
Includes Retrospect™ software, 1 cartridge & cables.	
250MB SANKYO	\$549
External. Includes tape & backup software.	
Extra Tape	\$49

MEMORY

1MB (1x8-80ns)	\$39
4MB (4x8-80ns)	\$159

POWER PRICED

- New, Super Low Prices
- We buy quality components in huge volume & pass the savings to you!

NEW LOWER PRICES

POWER PACKED

- Choice of Brand Name Hard Drives
- Super Fast Access Time: 12ms-28ms
- 50,000+ hours MTBF
- Whisper Quiet fan
- 50-pin connectors to daisy-chain
- Steel Case for low heat & support

POWERDrive

- From the experts at HDI, since '87
- Compatible with all Mac systems
- Toll-free Technical Support
- Step-by-Step Manual Included
- 30-day "Worry-Free" Guarantee
- 1 & 2 Year Replacement Policies.



"...one of the fastest we tested." **MacUser**, 4/91
 "Well-constructed, quiet and competitively priced." **Computer Shopper**, 8/1/91
 "...some of the lowest prices ever advertised for the Macintosh..." **MacWeek**, 3/20/90
 "For aggressive pricing, nobody we surveyed comes close to HDI." **MacWorld**, 11/90

POWERDrive™
800-998-8024

HARD DRIVES
 International

Insight

Hard Drives International

602-350-1128 FAX: 602-350-1150
 1912 W. 4th St., Tempe, AZ 85281

National Accounts

Purchase Orders- Gov't/Educ./Corp.
 800-755-3928 FAX: 602-350-1180

International Accounts

800-350-1144
 FAX: 602-350-1188

Price/availability subject to change without notice. All items are NEW. P.O.'s accepted from qualified buyers-NET 20. Add \$13 shipping for APO/FPO orders. P.O.'s, 30-Day Guarantee & 1 Year Warranty may have some restrictions. Shipping is not refundable. All trademarks are the properties of their respective owners. PowerDrive is a trademark of Insight Distribution Network, Inc. *Manufacturer 2yr warranty.

GFI

Nº 1 IN

VALUE

MACCENTER™

The Center Of The Macintosh Universe™

COMPARE

MacCenter™

has the
BEST
Prices
for Mac
Hardware!

Item List

1 MB SIMM (80ns)
4 MB SIMM (80ns)
PLI Infinity Turbo
E-Machines T16 Monitor
SuperMac 20" SuperMatch
Texas Instruments PS17
DoveFax Desktop 24/96
DayStar PowerCache 50MHz w/ FPU

MacConnection	MacWarehouse	MacZone	MacCenter™
\$39.50	\$69.00	\$42.00	\$36.00
\$137.25	\$159.00	\$146.00	\$119.00
\$699.00	\$679.00	\$649.00	\$599.00
n/a	n/a	\$1758.00	\$1,395.00
\$1,799.00	\$1,799.00	n/a	\$1,699.00
n/a	n/a	\$1,300.00	\$1,265.00
\$269.00	\$269.00	\$294.00	\$249.00
\$1,674.00	\$1,799.00	\$1,787.00	\$1,549.00

n/a = not available

MacCenter™ not only sells it for less, but our salespeople are more knowledgeable.

Prices verified as of 3/2/92.

**WIN A
MACINTOSH
AND A TURBO!**
CALL FOR DETAILS.



IN STOCK & SHIPPING!

**FREE ADOBE TYPE
MANAGER AND
ADOBE GARAMOND
WITH EVERY TURBO!**
\$346 VALUE



microLaser PLUS

microLaser Plus PS17	\$1265
microLaser Plus PS35	\$1565
microLaser XL PS17	\$2425
microLaser XL PS35	\$2725



microLaser TURBO

microLaser Turbo	\$1995
microLaser Turbo XL	\$3125

- 9ppm & 16ppm, with 17 or 35 Fonts
- 1.5 meg RAM Standard
- Upgradable to 4.5 meg RAM
- Mac & PC Compatible with 3 Interface Ports
- Upgradable to Turbo — Call For Pricing!

- 9ppm & 16ppm, Weitek RISC & 68000 Processors
- 2.5 meg RAM Standard, Upgradable to 10.5 meg
- PostScript Level 2, with 35 Fonts
- Mac & PC Compatible with 3 Interface Ports
- Automatic Port and Emulation Switching
- 6 Times Faster Than Other Postscript Printers

OTHER PRINTERS



PLPII, PLPIIS
BLPII, BLPIIS, BLP Elite
WritImpact, WriteMove

**Call!
Call!
Call!**

NEC

Silentwriter2 Model 90	\$1499
Silentwriter2 Model 95	Call!
Silentwriter2 Model 990	\$2895



PS 410	\$1599
PS 815MR	\$3895
PS 825MR	Call!

We Stock All Accessories & Supplies for Our Printers



DoveFax



\$169

- 2400 Baud Data
- 9600 Baud Fax
- Full Background Send & Receive
- Auto Receive & Retry
- Customizable Cover Pages
- On Screen Display of Faxes
- Sequential Broadcasting
- Scheduled & Group Send
- One Year Warranty

These units, 100% refurbished, are guaranteed by Dove, and are a limited offering by special arrangement between Dove and MacCenter™. Strictly limited as to quantities. All sales are final.

MacUser
★★★★

Five-Year Warranty!

		Int	Ext
385 MB	4.4 ms	\$999	\$1099
765 MB	4.6 ms	\$1399	\$1499
1.2 Gig	4.1 ms	\$1999	\$2099
1.5 Gig	4.1 ms	\$2599	\$2699
1.6 Gig	11.5 ms	\$2999	\$3099
2 Gig	3.9 ms	\$3399	\$3499

Thirty-Day Money Back Guarantee!

Our drives include and are formatted by DiskMaker™ from Golden Triangle.



These drives are SCSI-2, System 7 & A/UX compatible, carry a Five-Year Warranty, include brackets or metal cases, universal power supplies, cables and 15 MB of shareware. MacCenter™ also carries fine drives from FWB, Fujitsu, Quantum, Hewlett-Packard, Micropolis and Seagate.

Special!

	Int	Ext
105 MB	\$299	\$399
23ms, One-Year Warranty		

Limited Quantities!

MACCENTERTM

The Center Of The Macintosh UniverseTM

Nº 1 IN

SERVICE

DAYSTAR
D I G I T A L

SALE!

40 MHz PowerCard 030

306% Faster than a Macintosh III!

\$649

50 MHz PowerCard 030

370% Faster than a Macintosh III!

\$999

Why Buy a Quadra?!

PowerCards Are:

- 100% Compatible With All Standard Software
- Available for Mac II, IIx, and IIcx
- Available with 68882 Math Coprocessor
- System 7 & A/UX Compatible
- Upgradable to PowerCache

100%
Compatible



MacUser
★★★★★



Limited Supply!

All DayStar PowerCards are brand new, in original DayStar boxes. All sales final.

E-MACHINES

Futura EX, SX/8, SX, & MX

Call!

Rated #1 three years in a row by MacUser, the E-Machines T16 and now the E16 and T16 II are industry standards.

We will meet or beat any of our mail order competitor's deliverable prices for in-stock items.

We Will Not Be Undersold!

NEC

MultiSync 3FGx, 4FG, 5FG

Call!

RasterOps

RasterOps Color Systems

Call!

Seiko CM-1445 14"

with E-Machines 8 bit accelerated with RasterOps 24S

\$589

\$899

\$979

Sony 1604 17"

\$999

SuperMatch 20" \$1699



SUPERMAC

20" Platinum Monitor (Grey Scale)

\$999

Spectrum/8•24 PDQ

\$849

Monochrome Card

\$349

VideoSpigot

In Stock!

Call!

SIMMs

4 Meg 80ns

\$99
(with trade in)

1 Meg 80ns

\$36

1 Meg 120ns

\$29

Call for 16 Meg SIMMs & PowerBook Memory

Lifetime Warranty

MACINTOSH SYSTEMS

Inside every canned configuration is **your Mac**, trying to get out! At MacCenterTM, we'll tailor a setup for you which will best suit your needs, not fill it with extras you either don't need or don't care about. Your Mac is in stock! Call us today for your quote.

PowerBook 140 4.40

\$2895

PowerBook 170 4.40

\$3795

6 MB Upgrade

\$399

Our other prices are even better! Call now!

- **NO SURCHARGE OR MINIMUM** with MasterCard and Visa.
- **YOUR CREDIT CARD IS NOT CHARGED** until your order is shipped.
- **PERSONAL CHECKS, COMPANY CHECKS,** money orders and cashier's checks are accepted; money orders and cashier's checks clear immediately, please allow ten days for personal and company checks to clear.
- **APO AND FPO ORDERS** are accepted with no minimum or surcharge.
- **PURCHASE ORDERS:** Educational, Government and Institutional purchase orders are accepted with thirty (30) day terms. Corporate POs accepted with 30 day terms upon credit approval. No minimum or surcharge for purchase orders.
- **INTERNATIONAL ORDERS:** No minimum orders or surcharge for international orders, whether placed by mail, fax or telephone.
- **MONEY BACK GUARANTEE:** Most products carry a manufacturer's 30 or 60 day money back guarantee. Please ask for details when ordering.
- **ALL PRICES, PROMOTIONS AND PRODUCT AVAILABILITY** are subject to change without notice. We regret we cannot be responsible for typographical errors and cannot guarantee compatibility of all products.
- **ALL RETURNS MUST HAVE AN AUTHORIZATION NUMBER.** Please call 512-476-7466. All returns or refused shipments are subject to a restocking fee.

• **HOURS:**

8:00 am - 8:00 pm CST M-F
10:00 am - 4:00 pm CST Saturday
Sunday: Call, you may get lucky.

AIRBORNE EXPRESS



MACCENTERTM

812 San Antonio Street; Suite 406 • Austin, Texas 78701-2224

800-950-3726
FAX 512-476-3726
International Orders 512-476-7466

NEW! Quark XPress 3.1 \$511

Ask about our wide selection of Quark XTensions.



QMS

QMS PS-410 \$1495

300 DPI Postscript • Auto PC-Mac Switching
45 Resident Fonts • 2MB RAM • With Toner Cart
QMS 2MB Upgrade \$175
QMS 4MB Upgrade \$295

DGR 128MB Removable 3.5" Erasable Optical \$1399

Erasable Optical Drive with 35ms access.
3.5" 128MB cartridges only \$59

dgr
technologies

FWB

FWB's Hard Disk
ToolKit Lite Included
with DGR 128REM!

Panasonic 19" Two Page Display & Video Card

1152x876 Resolution
One Year Warranty
Available in 220 Volt



Monochrome System \$499
Grayscale System \$699

Abaton Interfax 24/96 With InterShare \$244



JetInc. Inkjet Refill Twin Pack \$15.99

For HP
DeskWriter
& Apple
StyleWriter



Seiko CM-1445 14" Trinitron \$539



SyQuest 45/88 Cartridges \$63 / \$119



HP DeskWriter \$389 HP DeskWriterC \$722



NEW! Sony 1604 17" Trinitron \$1099



Microtek TrueLaser RISC 6ppm \$1248



Umax 630 24-bit Scanner with PhotoShop \$1249



MacUser, Dec 91

SYSTEMS

New Prices! Call for PowerBook RAM & Quadra VRAM



SYSTEM LEASING NOW AVAILABLE

Macintosh Classic 1/0	825
Macintosh LC 4/40	1387
Macintosh IIfx 3/40	1999
Macintosh IIfx	2725
Macintosh IIfx	3745
Macintosh Classic Model II 2/40	1541
Macintosh Classic Model II 4/80	1948
Macintosh Quadra 700	4237
Macintosh Quadra 900	5235
PowerBook 100 2/20	1849
PowerBook 100 2/20 w/ Floppy	2029
Macintosh PowerBook 140 2/40	2298
Macintosh PowerBook 140 4/40	2544
Macintosh PowerBook 170	3734

Now Included With All Macintosh Systems - FWB Hard Disk Toolkit Lite!

NETWORKING

Asante 10baseT Hub	610
Asante 16k/64k Cards/ All CPU	239/255
Cayman Gatorbox/GatorPrint	1849/359
DaynaPort/DaynaPort FPU	245/349
Dayna EtherPrint/EtherPrint Plus	325/589
Farallon Star Controller/EN	799/1199
PhoneNet 10 Pack	188
QuickMail 10 User	285
Shiva Ethergate / FastPath 4	1262/1850
Shiva Netbridge/ Telebridge	399

Dove FaxModems

24/96 Fax modem with built-in Voice Mail/Answering Machine Capabilities • Available in 220 Volt

\$305

DoveFax 24/96 \$222



Timbuktu Remote Access Pak 732

INPUT/OUTPUT

Apple Extended Keyboard	170
Datadesk Keyboard 101E	115
EMAC Silhouette	75
Kensington Turbo Mouse	101
Keytronic MacPro Plus Keyboard	115
Mac Recorder Digitizer Only	89

MODEMS & FAXES

Global Village Teleport ADB Send/Fax	175
Global Village FullFax Send & Receive	215
Practical Peripherals 2400b	164
Practical Peripherals MacPak	225
Shiva Net Modem v.32	1230
US Robotics Courier 9600 V-32	695
ZOOM 2400 Baud Modem/Fax	89
ZOOM 24/96 Send/Receive Fax	155

PRINTERS

Abaton LaserScript LX	1499
Apple LaserWriter IIfx 20MHz 030	2764
Apple LaserWriter IIfx 25MHz 030	3533
Apple StyleWriter	349
Apple Personal Laser LS/NT	915/1750
Hewlett Packard Lasers	Call

Hewlett Packard DeskWriter 389

Hewlett Packard DeskWriter C 722

LinoType 330 & 550 with RIP 4

NEW NEC Silentwriter II Model 95 1475

QMS PS-410 1495

Seiko ColorPoint 1651

Tektronix Color Quick Inkjet 2449/2799

TI MicroLaser PS XL 17/35 1949/3129

TI MicroLaser Turbo/TurboXL 1949/3129

VIDEO SOLUTIONS

Apple 13" HighRes RGB 639



ASK ABOUT GCC REBATES!

GCC PLP II 4ppm	849
GCC PLP IIs 8ppm	1246
GCC BLP Elite 4ppm	1415
GCC BLP II 4ppm	1659
GCC BLP IIs 8ppm	2409



Apple 12" Color RGB 425

Apple 21" Color RGB 3534

E-Machines Monitors -All Models 1795

Ikegami CT-20" Trinitron 579

Mass Micro Quick Image 24 659

NEC MultiSync 3FGx 659

NEC Monitors -All Models 659

Seiko CM-1445 539

Sony 1304 14" Trinitron 1099

Sony 1604 17" Trinitron 1099

ACCELERATORS & CACHE

APPLIED ENGINEERING

AE QuickSilver IIsi 239

AE QuickSilver IIsi w/FPU 275

AE TransWarp LC 33MHz 749

AE TransWarp LC 33MHz w/FPU 879

ATTO IIsi Cache Card 149

Motorola PMMU 68852 109

Sigma Double-Up Card 189

TokaMac 040 for the IIsi 2399

TokaMac 040 for the LC 2079

TokaMac for the IIsi & SE/30 2228

SCANNERS

Microtek 600GS with PhotoShop LE 1118

BOTTOM LINE INTERNATIONAL DEPARTMENT

Bottom Line Distribution is committed to the needs of the international Macintosh user and reseller. Contact our full-time international department via fax at (512) 476-6399. We offer discounted rates with DHL, UPS International, or Federal Express.

Delivery times to most countries is 2 to 3 days. We stock 220v versions of most hardware. Dealer inquiries are welcome. Language interpreters are available. Internationale Händlerkonditionen.

国際ディーラーの条件が出来る



INTERNATIONAL SALES FAX (512) 476-6399

Bottom Line Distribution 1800 Rio Grande, Austin, Texas 78701



Turbo microLaser PS/35 \$1949

9 ppm engine • Postscript Level 2 RISC processor
Appletalk interface included on all models
16ppm Turbo microLaser PS/35 XL \$3129



TI 1MB UPGRADE
\$59
TI PS/17 to PS/35
FONT ROM UPGRADE
\$399
FASTER ENGINE!
9 Pages Per Minute



Microtek 600ZS \$1239

600 DPI 24-bit Scanner with Photoshop 2.0
& ScanMatch Calibration Software



TI microLaser Plus PS/17 \$1225

TI microLaser Plus PS/35 \$1525

Appletalk interface & 1.5MB RAM included on all models
1MB TI Upgrade \$56 • Replacement Toner \$55

Microtek 1850S Slide Scanner \$1689

1850 DPI Color Slide Scanner with Photoshop 2.0



RasterOps



radius



DAYSTAR



Spectrum /8•24 PDQ.....	\$799
Spectrum /Series III.....	\$1460
Spectrum /8 & Spectrum/24.....	\$489/\$962
Thunder 8/24 Video Cards.....	Call
Spectrum 19" Platinum Two-Page.....	\$882
SuperMatch 21" Platinum Two-Page.....	\$1030
SuperMatch 20" Trinitron.....	\$2577
SuperMatch 20".....	\$1718

Video Spigot starting at \$399
Thunder Cards - Call!

NEW! CorrectPrint 300DPI.....	\$8473
NEW! ProColor 32.....	\$3080
8/24XLI 24-bit Accelerated Card.....	\$989/\$1699
24STV 24-bit with Frame Grabber.....	\$791
24s / 24si -24-bit Video.....	\$399/\$599
Video Expander (NTSC/PAL).....	\$461
24XLTV Large Screen Live Video.....	\$2639
19" Trinitron/ 19" Hitachi.....	\$2620/\$1582

RasterOps 364 Board \$699
24-bit Card with Frame Grabber *Limited Qty!

Rocket 040 Accel /25i.....	\$1640/\$1230
Two Page Interface II, IIsi, SE, SE/30.....	\$415
24-bit Interface 72 DPI.....	\$2515
QuickColor Graphics Engine.....	\$275
Precision Color Calibrator.....	\$485
Two Page Display 19"/21".....	\$975/\$1249
Color Display 19"/21".....	\$2999/\$149
Color Pivot Interface II, IIsi, LC, SE/30.....	\$549

Radius Color Pivot \$1297
Landscape or Portrait View • Tilt Swivel Stand

Accelerators for LC, SE/30, II, IIsi, IIfx, IICI	
33MHz PowerCache.....	\$613
40MHz PowerCache.....	\$799
40MHz PowerCache with 68882 FPU.....	\$989
50MHz PowerCache.....	\$1228
50MHz PowerCache with 68882 FPU.....	\$1475
FastCache IIsi.....	\$259
FastCache IICI.....	\$249

Daystar 50MHz PowerCache with 68882 FPU \$1475

Microtek 600ZS with Photoshop	1239
Microtek 1850 Slidescanner	1649
Sharp JX320 w/Interface	1575
Sharp JX450 w/Interface	4617
Sharp JX600 w/Interface	10994
Umax 630 w/Photoshop	1249

DRIVES & TAPES

Applied Engineering 1.44 Drive	209
Applied Engineering Plus Drive	283
Bernoulli 90MB w/ Interface	814
PLI Super Floppy	399
PLI Turbo Floppy	287
PLI Quick SCSI with Cable	310
Quantum 52MB LPS	239
Quantum 105MB LPS	349
Quantum ProDrive 170MB	629
Quantum ProDrive 240MB	659
Quantum 425MB	1275
Internal/External Drive Kit	29/99

CD ROM

Chinon CD-ROM	525
NEC CDR-36 w/ Type Gallery	469
NEC CDR-73	616
PLI CD ROM	636
Toshiba CD-ROM XM 3201A	685

Microsoft Office - CD ROM	574
Type Gallery PS	229
NEC Clip Art 3-D	221
SOFTWARE	
4th Dimension 2.2	469
Adobe Illustrator 3.2 w/ATM	335
Adobe PhotoShop 2.0	515
Adobe Type Manager 2.0.2	54
Adobe Type Reunion/Streamline 2.0	36/75
AfterDark & More After Dark Bundle	37
Aldus Freehand 3.1	369

Aldus PageMaker 4.02	475
Aldus Superpaint 3.0	129
Aldus Gallery Effects	129
Aldus Persuasion 2.0	299
At Once! 1.2	177
Canvas 3.0	239
Carbon Copy 2 Pack	153
Clarix Works	184
MicroSoft Excel 3.0	67
NEW! Microsoft Word 5.0	39
Microsoft Office	62
MS Project	171
MS Works	46
Far Side Calendar	115
FastTrack Plus 2.6	181
FileMaker Pro	399
FontMaker	249
Fontographer 3.3	65
FontMonger	265
Fontbase + Mac 2.01	234
Fractal Design Painter	642
FrameMaker	225
Lotus 1-2-3 for Macintosh	39
Mac Academy Training Tapes	249
MacDraw Pro	39
MacGlobe	329
MacProject II 2.5	



Macromind Director 3.0	618
Macromind Accelerator	125
Macromind MediaMaker	449
MacWrite Pro	449
Managing Your Money 4.0	92
MasterTracks Pro	183
MicroPhone II 4.0	195
PixelPaint Professional 2.0	479
Pixar Renderman	559
Quark XPress 3.1	511
Quick Keys II V.2.1	87
Quicken 3.0	38
Retrospect 1.3	131
Soft PC -All Versions	Call
Stratavision 3D 2.0	579
Studio/32	399
Stuffit Deluxe 3	48
SUM II	87
Swivel 3D Pro	399
System 7.0	84
Think C 5.0	173
Think Pascal 4.0	159
Typewriter 2.0	122
Vellum 2.0	1399
White Knight	75
WordPerfect 2.03	265
Write Now 2.2	111

HOW TO ORDER Payment: Visa, Mastercard, Discover (no surcharge), checks, and GOD's. \$6,000 maximum on COD's. **Tax:** Texas residents add 8% sales tax. **Prices** and items subject to change and availability. **International:** 5% surcharge on international orders. **Mail In:** Orders accepted with a \$10 surcharge. **Terms:** You are not charged until your order is shipped. Phone charges cannot be refunded. **Shipping:** minimum \$5-UPS Ground, Blue, Red, Federal Express. **Returns** must be in original condition and package and require an RMA#. Seal must not be opened on software. Returns may be subject to a restocking fee. Ask for details when ordering. Bottom Line Distribution cannot be responsible for errors in typography or photography.



BOTTOM LINE
DISTRIBUTION

Fax: 1-900-420-8770

1800 Rio Grande, Austin, Texas 78701

\$10 PER FAX

1-900-420-3737

LOWEST PRICES HERE



Microtek 600 ZS \$1299

SYSTEMS

	Price
Mac LC 2/40	1570
Mac IIfx - 5 meg	4179
Mac IIfx - 5 meg	2750
Mac IIfx - 5/105 (Quantum)	3099
Mac IIfx - 3/40	1999
Mac IIfx - 5/80	2549
Extended Keyboard	170
Mac Quadra 700 - 4 meg	4500
Mac Quadra 700 - 4/80	5050
Mac Quadra 700 - 4/160	5515
Mac Quadra 900 - 4 meg	5675
Mac Quadra 900 - 4/160	6695
Mac Powerbook 100 2/20	1990
Mac Powerbook 100 2/20 w/external drive	2190
Mac Powerbook 140 2/20	2590
Mac Powerbook 140 2/40	2790
Mac Powerbook 140 4/40	2995
Mac Powerbook 170	Call

MONITORS

IKegami	
CT20 Color Trinitron	1845/825
& CT 2010 Mono	1845
CN20 Color INVAR Tube	2399
CT20 w/8 Bit Card	3049
CT20 w/24 Bit Card	
Radius	
19" Precision Color Display	2290
21" Color Display	3125
Color Pivot	1249
Color Pivot Interface	515
II, LC, IIfx, SE, SE/30	
Full Page System for Classic	825
Full Page System for LC	885
Full Page System for SE	825
Pivot Display for Built-in Video	799
Two Page Display 19"	959
Two Page Display 21"	1230
Two Page Display Interface	399
SE, SE/30, II, IIfx	
Precision 8 interface	515
Precision 24x	1700
Precision 8x	799
Rocket Accelerator	1700
Apple	
Apple 13" Highres	649
Seiko	
Seiko CM-1445	569
SuperMac	
Platinum 19" Display	964
Platinum Two-Page Display	1239
Super Match 19" Color	1929
Super Match 21"	
Two-Page Color Display	3031
Dual-Mode Trinitron 19"	2699
Thunder/8	1159
Thunder/24	2899
Spectrum 8.24 PDQ	899
Magnavox	
14" Color Monitor	499

DRIVES

	Ext.	Int.
Quantum 105 Pro	469	369
Quantum 210 Pro	835	710
Maxtor 120		399
Maxtor 213		659
Maxtor 340		1099
Maxtor 180 meg	1800	
Syquest 44MB	519	
Syquest 88MB	879	
Internal Drive Kit		29
Syquest 44MB cort.		75

SOFTWARE

Microsoft Word	269
Microsoft Excell	309
Aldus Pagemaker	497
Caere Omnipage	499
Adobe Photoshop 2.0	515
Quark Express	529
Adobe Streamline	69

PRINTERS

Microtek TrueLaser	1299
TI Microlaser PS35	1519
TI Microlaser PS17	1219
HP Deskwriter	439
HP Deskwriter Color	739
QMS PS410	1699
NEC Model 90	1579
HP Deskwriter Ink Cartridge	18
Appletalk Connectors	25
Apple Laserwriter IIf	2799
Apple Laserwriter IIf	3533
Color Printers	
NEC PS 40	4795

SCANNERS

Logitech ScanMan 32	279
Microtek 600ZS w/Photoshop	1299
Microtek 1850S Slide	1895
Scanner	
Caere Typist	420

MODEMS

Zoom	
FX9624 Plus 2400 BPS	139
Modem MX 2400S w/SendFax	
9600 BPS	105
v.32 Turbo w/v.42bis	
w/MNP software	445
Dove Fax Modem 9624+	295

ACCELERATORS

Daystar	
40 Mhz PowerCache	889
50 Mhz PowerCache	1329
50 Mhz PowerCache	
w/68882	1599
Radius Rocket	1700

Printer Connection

(714) 758-8832
FAX (714) 635-1752
Overnight and Federal Express Shipping Available

CIRCLE 132 ON READER SERVICE CARD.

WE'LL MATCH ANY ADVERTISED PRICE!

BIG, FAST DRIVES!

FILESERVERS

PHOTOSHOP

MULTIMEDIA

1.75 Gigs

1.34 Gigs

1.03 Gigs

670 Megs

340 Megs

The MICRODISK from Micropolis... Large Capacity, High-Performance External Drives

According to Byte magazine's extensive tests, the Microdisk is the fastest MAC drive available. With record-setting effective access times as low as 3.9 milliseconds and data transfer rates as high as 10.0 megabytes/second, the Microdisk is the drive you need for high performance applications.

And, the Microdisk tops the list for reliability with a 150,000 hour mean-time-between-failure rating. Combine all this with a five-year disk drive warranty and you have the best drive for your money.



MICROPOLIS



*If You Need High-Capacity,
Speed and Reliability...
Call Us Today!*

DIRECTTECH
800-279-5520



CIRCLE 33 ON READER SERVICE CARD.

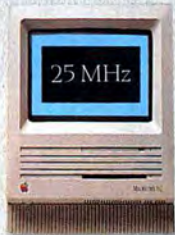
ALSO AVAILABLE FOR THE MACINTOSH CLASSIC!

"THE BEST UPGRADE VALUE WE'VE SEEN YET FOR THE SE."

-MacWEEK

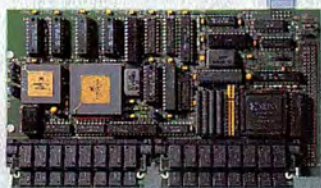
SAVE \$2000 BY UPGRADING YOUR SE OR CLASSIC TO MAC IIci PERFORMANCE.

Upgrade to Mac IIci performance with the Mobius 030 Display System. The only *complete* 030 accelerator and display system available for the SE and Classic for one low package price.



TOP-RATED IMAGE QUALITY.

View a full page in Word™, an entire layout in PageMaker™, or a full year's budget in Excel™ on the razor-sharp, flicker-free Mobius One or Two Page Display. "The most visually appealing..." wrote *MacWorld*, "...very bright, very sharp, very easy on the eyes."



SE W/MOBIUS 030

MAC IIci

MAC IIxi

SE

Performance Comparison

RUN 6 TIMES FASTER AND INCREASE YOUR MEMORY UP TO 16MB.

With a 25 MHz 030 accelerator and video on one card, your *entire* Mac will run six times faster. Plus, on-board SIMM sockets allow memory expansion to 16 MB*, including virtual memory support.

*With Memory Expansion Option ©1991 Mobius Technologies, Inc. Mobius 030 Display System is a trademark of Mobius Technologies, Inc. All other trademarks are property of their respective holders. Mobius Technologies, Inc., 1125 Atlantic Avenue, Alameda, CA 94501, 510-523-7900, fax 510-523-8452. Pricing subject to change without notice.

\$1095
ONE PAGE SYSTEM
W/25 MHZ 030



\$1295
TWO PAGE SYSTEM
W/25 MHZ 030



UNLIMITED TOLL-FREE SUPPORT.

At Mobius, we guarantee your satisfaction with unlimited, toll-free access to our Apple-trained support specialists, 30 Day Money Back Guarantee, One Year Warranty, and Free 48 Hour Warranty Express Service. Order now to see for yourself what the best upgrade value is for your SE or Classic.

ORDER DIRECT.

Mon-Fri. 8am-5pm PST.

Major Credit Cards Accepted.

Corporate Purchase Orders

accepted upon credit approval.

Leasing Plan Available.

MOBIUS
TECHNOLOGIES, INC.

800-523-7933

In Canada: 416-886-2326

CIRCLE 124 ON READER SERVICE CARD.

Monitors to

We've got it all In Stock

RASTEROPS®

Now There's One Place for All Your RasterOps Needs. MacNews Stocks the Complete Line!

Color Displays

with purchase of color board

NEW! RasterOps "Sweet 16"\$995

16" Color display • 824 x 632 • 72 dpi

RasterOps 19" Hitachi\$1,595

19" Color display • 1024 x 768 • 72 dpi

RasterOps 20" Trinitron\$2,495

20" Color display • Dual scan

1152 x 870 • 81 dpi • 1024 x 768 • 72 dpi

RasterOps 21" HitachiCall

21" Color display • 824 x 632 • 72 dpi



\$1,595

RasterOps 19" Hitachi Color Display

\$995



RasterOps Sweet 16



Color Video Boards

Let Us Help You Pick the ColorBoard Perfect for Your Needs.
We've Got Them All at the Best Prices!

8XL Accelerated 8-bit color board

New PaintBoard 24 Accelerated
24-bit color board

24XLi Accelerated 24-bit color board
16MB VRAM expandable

24MX Accelerated 8-bit color board for 16"

24 MXQ Accel. 24-bit for 16" with quadra

24XLTV 24-bit live video for large screen

24STV 24-bit live video for 13"

Macs 🍏 Macs 🍏 Macs 🍏 Macs

**We've Got Macs
In Stock!**

Custom configurations available. Some quantities are limited. Publication deadlines don't always allow us to advertise our latest price. So call for latest details!

Mac Classic, 2/40\$995

Mac Classic II, 4/80\$1,445

Mac IIsi, 3/40Call

Mac IIfx, 5/0\$2,745

Mac Quadra 700, 4/0\$4,345

Mac Quadra 900, 4/0\$5,495

Mac PowerBook 170Call

Mac cpu's



Mac PowerBook 170

the Macs!

— at the Lowest Prices



Your Source for SuperMac
MacNews carries the full line of SuperMac products. Call for more info and prices.

Graphics Displays

- SuperMatch 20 Display\$1,645**
Color display • 1024 x 768 • 72 dpi
- SuperMatch 20" Trinitron\$2,495**
Color display • Dual Mode • 1024 x 768 • 72 dpi
1152 x 870 • 77 dpi
- SuperMatch 17 Multi-mode\$1,045**
Supports all Mac resolutions

Graphics Cards

- Spectrum /8 Series III\$529**
Accelerated 8-bit color card for all screens
- Spectrum /24 Series III\$1,495**
Accelerated 24-bit color card for all screens
- Spectrum 8/24 PDQ\$879**
8-bit color on lrg. screen, accel 24-bit on 12 & 13"
- NEW VideoSpigotCall**
Si, LC, NuBus, Pro NuBus, Pro Si



SuperMatch 20 Color Display \$1,645

SHARP



Sharp JX-320 \$1,495

Scanners

- Sharp JX-320 Scanner\$1,495**
30 to 600 dpi, 24-bit color, grayscale or b/w
- JX-320 Transparency Option ...\$995**
Add this user installable option for film transparencies and 35mm scanning
- Sharp JX-600 ScannerCall**
Eddy award-winner allows scanning of reflective art and transparencies up to 11" x 17"
- Microtek 600ZS\$1,295**
600 dpi, 24-bit scanner with Photoshop 2.0
- Microtek 1850S Slide Scanner \$1,895**
1850 dpi, color slide scanner with Photoshop 2.0
- Umax 630 Scanner\$1,245**
600 dpi, 24-bit scanner with Photoshop 2.0

Drives/Storage



- PLI Infinity Floptical\$549**
21 MB on one 3.5" floppy
- PLI Infinity 44 Removable\$599**
with cartridge
- PLI Infinity 88 Removable\$775**
with cartridge & all the features of 44MB
- PLI Quick SCSICall**

**TEXAS
INSTRUMENTS**



TI Turbo \$1,995

Printers

- TI microLaser Plus PS/17\$1,245**
9ppm engine, 300 dpi, 17 PostScript fonts
- TI microLaser Plus PS/35 ...\$1,565**
9ppm engine, 300 dpi, 35 PostScript fonts
- TI microLaser TURBO\$1,995**
9 ppm, PostScript level 2, 35 fonts
- TI microLaser TURBO XLCall**
16 ppm, PostScript level 2, 35 fonts
- TURBO Upgrade KitCall**
Upgrade microLaser or micro XL to Turbo



Call for pricing on the complete line of Asanté
10BaseT Hubs, Ethernet Cards, Ethernet SCSI
Devices and PersonToPerson Software.

Over 17,000 Mac Products Available
No matter what you're looking for, call MacNews
for the lowest price and fastest delivery

"Make all my new macs, MacNews!" — Michael Stricker • Burlington, NJ
Graphic Designer & Enthusiastic MacNews Customer

CIRCLE 130 ON READER SERVICE CARD.

Ref: 15

1-800-243-9383

24 HR FAX 312-871-4556
1555 SHERMAN AVE • SUITE 361 • EVANSTON, IL 60201



Mac and MORE INC.

Your Mail Order SuperStore™

Mon - Friday 9:00 - 9:00 Saturday 9:00 - 5:00 Sunday 12:00 - 5:00 Eastern and Mountain

CPU's and More...

Free 1200 Baud Hayes Modem!

Buy any Apple system and a monitor from Mac and More and we'll give you a modem. But supplies are limited so place your order while they are still in stock!!!

Macintosh Classic	\$845.00
Macintosh Classic 2/40	\$1199.00
Macintosh LC 4/40	\$1449.00
Macintosh IIfx 3/40	\$1979.00
Macintosh IIfx 5/0	\$2799.00
Macintosh IIfx 4/0	\$3899.00
Mac IIfx NuBus or 030 Direct Card	\$189.00
Apple Ext. Keyboard w/CPU Purchase	\$160.00
Apple Std. Keyboard w/CPU Purchase	\$90.00
MacPro Plus Extended Keyboard	\$124.00

The New Macs are here!

Macintosh Classic II 4/40	\$1269.00
Macintosh Classic II 4/120	\$1628.00
Macintosh PowerBook 100, 140, & 170	CALL
Macintosh Quadra 700, and 900	CALL

...and we have PowerBook memory & Quadra VRAM

Systems and More...

Mac LC Student Package	Ask about free shipping!
4 Mb of RAM, 40 Mb internal hard disk, mouse, microphone, keyboard, Apple 12" RGB monitor and StyleWriter printer. Add \$530 for a Personal LS.	\$2199

DayMaker Power Package	Ask about free shipping!
PowerBook 140 4/40 4 Mb RAM and 40 Mb hard drive. Battery, AC adapter, Battery powered GCC WriteMove Printer and the Popular DayMaker Personal Organizer Software.	\$5299

Mac IIfx Office Package	Ask about free shipping!
5 Mb of RAM, 120 Mb internal hard disk, mouse, microphone, Apple standard keyboard, Apple 13" RGB monitor, and Personal LaserWriter LS.	Call

Quadra 700 Designer Package	Ask about free shipping!
8 Mb of RAM, 213 Mb internal hard disk, mouse, microphone, Apple extended keyboard, E-Machines T-16 Color Monitor, and 1 Mb of VRAM.	Special!

We do custom configurations!

Extended Warranty Service for your Macintosh

The fastest-growing direct reseller of Macintosh systems can double the warranty on your Mac system. Club 24 Services include:

- 24 month warranty on Apple products
- 72 hour repair or replace turn around
- Shipping via FedEx included both ways

Want more details? Call!

West Coast & Canada Sales Office

4730 Walnut, Suite 105
Boulder, Colorado 80301

800-846-4MAC

West Coast and Canada

303-447-2732 International

303-447-3973 Corp. Fax

303-447-8051 Fax

Video and More...

Apple 12" Monochrome Monitor	\$229.00
Apple 12" RGB Monitor	\$429.00
Apple 13" RGB Monitor	\$669.00
Apple 15" Portrait Monitor	\$769.00
Apple Two Page Monitor	\$1199.00
Apple 21" Color Monitor	NEW
Seiko 14" Trinitron RGB	\$629.00
Sony 14" Trinitron RGB	\$649.00
Macintosh Display Card 8-24	\$545.00
Macintosh Display Card 8-24 GC	\$1349.00
512K VRAM Upgrade for Mac LC	\$99.00
256K VRAM Quadra	\$69.00

High-end Video and More...

19" Color Trinitron Signature System with RasterOps 8XLI	\$3999.00
19" Hitachi Color Systems with RasterOps 8XLI	\$2639.00
with RasterOps 8XLI	\$2169.00
New 16" Color System with RasterOps 24Mx	CALL

RasterOps

All New Prices, to **HOT** to list!

Mac Display Boards	
RasterOps 24XLI Display Board	\$2049.00
RasterOps 24Mx Display Board	\$1229.00
RasterOps 8XLI Display Board	\$959.00
RasterOps 8XLI Display Board	\$489.00
ClearVue/GSXL Gray Scale Board	\$479.00

Multimedia Boards	
RasterOps 24STV Board	\$849.00
Expresso Slide Scanner	\$719.00

Radius

Pivot Displays	
Color Pivot Display with soft pivot	
Color Pivot 8-bit System	
for SE/30, LC, II, IIfx	
Pivot Display with soft pivot	
Pivot 8-bit System	
for SE/30, LC, and NuBus	

Full Page Displays	
Full Page Display for Classic	
Full Page Display for LC	
Full Page Display for IIfx and IIfx	

Color Systems	
Radius PowerView SCSI Interface	
PrecisionColor 8 & 8si Interface Card	
PrecisionColor 8x & 8xsi Interface Card	
PrecisionColor 24x & 24xsi Int. Card	
Radius Color Display 20" (Multiscan)	
Radius Color Display 19" (Trinitron)	

SIMMS and More...

PwrBk 2Mb	\$279.00	1x8 SIMM	\$37.00
PwrBk 4Mb	\$469.00	4x8 SIMM	\$139.00
PwrBk 6Mb	\$659.00	Others	Call

East Coast Sales & Corporate Office

5426 Beaumont Center Blvd., Suite 300
Tampa, Florida 33634

800-945-1MAC

East Coast

813-886-9534 International

813-888-9535 Corp. Fax

813-881-0634 Fax

800-945-TECH Tech Support

Best Sellers and More...

Apple 7.0 Personal Upgrade Kit	\$99.00
Abaton InterFax 24/96	\$279.00
Adobe Type Manager 2.0	\$59.00
Adobe Illustrator 3.0	\$379.00
Adobe Photoshop	\$599.00
Aldus PageMaker 4.2	\$549.00
Aldus Freehand 3.1	\$399.00
Clarisc MacDraw Pro	\$285.00
Clarisc MacWrite II	\$139.00
Clarisc FileMaker Pro	\$215.00
DoveFax Plus Modem	\$349.00
Kensington Turbo Mouse ADB	\$109.00
Microsoft Word 5.0	\$319.00
Microsoft Excel 3.0	\$309.00
Prometheus ProModem 9600MPlus	\$599.00
Quark Xpress 3.1	\$569.00

Printers and More...

QuickDraw	
Apple ImageWriter II	\$429.00
HP DeskWriter w/ AppleTalk	\$429.00
HP DeskWriter C w/ AppleTalk	\$749.00
GCC PLP II & IIS	Call
TrueType	
Apple StyleWriter	\$359.00
Apple Personal LaserWriter LS	\$899.00
Microtek TrueLaser	\$1395.00

PastScript	
NEW! Apple LaserWriter IIf	\$2829.00
NEW! Apple LaserWriter IIg	\$3599.00
Apple Personal LaserWriter NT	Call
NEW! GCC BLP Elite	Call
TI microLaser Plus PS17 w/AppleTalk	\$1299.00
TI microLaser Plus PS35 w/AppleTalk	\$1599.00
TI microLaser Turbo w/AppleTalk	Call
TI microLaser XL PS35 w/AppleTalk	\$2899.00
TI microLaser XL Turbo PS35 w/ AT	Call
QMS PS-410	\$1629.00
QMS PS-815MR	\$4199.00

Networks and More...

Phone Network adapters	\$19.00
Asanté FreindlyNet Media Adapters	\$89.00
Asanté FriendlyNet Cards	\$249.00
Asanté MacCon+ 16K Cards	\$199.00
Asanté MacCon+ 64K Cards	\$259.00
Asanté 10T Hub	\$679.00

Accelerators and More...

DayStar FastCache IIfx	\$269.00
DayStar FastCache IIfx	\$289.00
DayStar 33 MHz PowerCache LC	\$669.00
Get virtual memory on your LC with System 7	
DayStar 40 MHz PowerCache	\$869.00
DayStar 50 MHz PowerCache	\$1335.00
Available for the LC, SE/30, II, IIfx, II si & IIfx	
Radius Rocket 040 Accelerator	\$1629.00

Scanners and More...

NEW Apple One Scanner	\$1099.00
Caere Typist Hand Held OCR	\$479.00
Microtek 600 GS	\$799.00
Microtek 600ZS Color Scanner	\$1399.00
Microtek 1850S	\$1999.00
UMAX UC - 630 Scanner	\$1399.00



Check out our new hours!

We have extended our hours to 7 days a week for both the Sales and Customer Service Departments so that we can more efficiently accommodate your needs. And, we'll continue to find ways to make buying from Mac and MORE a smart decision.

FREE SHIPPING
Restrictions apply

Drives and More...

Internal	
ETC 40 Mb	\$199.00
ETC 52 Mb Quantum LPS, 12 msec	\$239.00
ETC 80 Mb Maxtor Drive	\$299.00
ETC 105 Mb Quantum LPS, 12 msec	\$349.00
ETC 120 Mb Maxtor Cheyenne, 15 msec	\$359.00
ETC 120 MB Quantum LPS, 11ms	\$439.00
ETC 213 Mb Maxtor LXT, 15 msec	\$589.00
ETC 240 Mb Quantum LPS, 11ms	\$739.00
ETC 340 Mb Maxtor LXT, 13 msec	\$989.00
ETC 425 Mb Quantum PRO, 9 msec	\$1269.00
ETC 535 Mb Maxtor LXT, 13 msec	\$1449.00
The drives below can be used in the Mac II, IIfx, and IIfx.	
ETC 307 Mb WREN-4, 14 msec	\$1129.00
ETC 337 Mb WREN-Runner-1, 10.7 ms	\$1279.00
ETC 613 Mb WREN-5, 16.5 msec	\$1349.00
ETC 676 Mb WREN-6, 15.5 msec	\$1399.00
ETC 676 Mb WREN-Runner-2, 12 ms	\$1649.00
ETC 760 Mb Maxtor, 13ms	\$1499.00
ETC 1.2 Gb Seagate, 15ms	\$1899.00
ETC 1.2 Gb Maxtor Panther, 13 msec	\$2169.00
ETC 1.7 Gb Seagate, 15ms	\$2399.00
ETC 1.7 Gb Maxtor, 13ms	\$2489.00
External	
ETC 40 Mb	\$259.00
ETC 52 Mb Quantum LPS, 12 msec	\$299.00
ETC 80 Mb Maxtor Drive	\$369.00
ETC 105 Mb Quantum LPS, 12 msec	\$429.00
ETC 120 Mb Maxtor Cheyenne, 15 msec	\$429.00
ETC 120 Mb Quantum LPS, 11ms	\$519.00
ETC 213 Mb Maxtor LXT, 15 msec	\$659.00
ETC 240 Mb Quantum LPS, 11 ms	\$809.00
ETC 340 Mb Maxtor LXT, 13 msec	\$1079.00
ETC 425Mb Quantum PRO, 9 msec	\$1339.00
ETC 535 Mb Maxtor LXT, 13 msec	\$1509.00
ETC 307 Mb WREN-4, 14 msec	\$1279.00
ETC 337 Mb WREN-Runner-1, 10.7 ms	\$1429.00
ETC 613 Mb WREN-5, 16.5 msec	\$1499.00
ETC 676 Mb WREN-6, 15.5 msec	\$1549.00
ETC 676 Mb WREN-Runner-2, 12 ms	\$1799.00
ETC 760 Mb Maxtor, 13ms	\$1559.00
ETC 1.2 Gb Maxtor Panther, 13 msec	\$2279.00
ETC 1.2 Gb Seagate, 15ms	\$2049.00
ETC 1.7 Gb Seagate, 15ms	\$2549.00
ETC 1.7 Gb Maxtor, 13ms	\$2589.00

Removables and More...

ETC 45R SyQuest Removable	Low price includes one cartridge.	\$439
ETC Dual 45R/88R SyQuest	Two removable drives in one box. Includes one of each cartridge! Also available is the ETC 44DR Dual and 88DR Dual Syquest Drives for \$799.00 and \$1299.00	\$1049
45 Mb Syquest Cartridge \$65; 88Mb - \$119		
ETC 88R SyQuest Removable	New low price includes one cartridge. MacUsers four mice winner!	\$399

Terms and Conditions: Payment: Mac and MORE accepts Visa, MasterCard, CDDs, and Purchase Orders. CDDs are shipped Cash/Verified Check up to \$10,000. Corporate and School Purchase Orders are Net 15 for orders over \$2500 only, and are subject to credit approval. Warranties: All warranties on Macintosh or Apple brand products sold by Mac and MORE will be honored by Mac and MORE or its authorized agents only. Mac and MORE does not guarantee compatibility. Like all other Mail Order retailers, Mac and MORE is not an authorized Apple reseller. All other manufacturers warranties are honored by Mac and MORE and the original manufacturer. Returns: All orders returned or refused will be charged a minimum 15% restocking fee. Call for an RTS before returning. Returns must be in original packing with software seals unbroken. Shipping: For orders over \$5000 we ship to destinations in the continental US at no charge. Some large items may not be included in this offer. Ask for details when ordering. Terms, Conditions, and Prices are subject to change without notice or obligation. All products sold by Mac and MORE are new. We do not sell used equipment. © 1992 Mac and MORE, Inc. All rights reserved. 9/0202.1

Your Mail Order Super Store



radius

Color Pivot Display
The Color Pivot Display, the first color full-page display for the Macintosh. It allows you to view your documents on either portrait or landscape orientation.

Color Pivot with Soft Pivot \$1325.00
gives you 16 colors on IIsi and IIfx.
Color Pivot 8-bit System \$1835.00
gives you 8-bit color on SE/30, LC, IIsi, and NuBus.

Full Page Pivot Display
The Full Page Display is an economical, monochrome display that lets you view a full page of text or graphics. It maintains superior contrast and focus across the entire screen. Plus, it's less expensive than Apple's Solution.

Full Page Display for Classic \$875.00
This system above includes an interface card.
Full Page Display for LC \$885.00
This system above includes an interface card.

Sherlock Holmes Consulting Detective™

For the first time ever, over 90 minutes of full-motion video brings Sherlock Holmes to life. This revolutionary CD gaming experience from ICOM SIMULATIONS lets you match wits with the super-sleuth himself. Guide Sherlock and Watson through the streets of London to interrogate suspects and solve three intriguing murder mysteries! Call for more details!



COMstation ONE \$284.00
Fax/Data modem which receives and sends faxes at 9600 BPS directly to or from your Macintosh; allows you to work in other applications while transmissions are completed.

COMstation TWO \$379.00
High-performance fax modem with the same software as COMstation ONE. But it adds V.42, V.42 bis, V.23, and MNPS to boost throughput of its 2400 baud data modem up to 9600 baud.

COMstation THREE \$524.00
High-performance, Hayes-compatible 32 bis, 14,400 bps Data Modem... Ideal for interactive applications or sizable file transfers. What's more, V.42, V.42 bis, and MNPS give you an effective throughput of up to 57,600 baud.



CD-Rom Players are here to stay! Toshiba 3301 CD-ROM Player

It has taken awhile, but CD-ROM players are here to stay. Everything that a desktop publisher needs now comes on a CD-ROM—fonts, bitmap and EPS clip-art, photo catalogs and textures. We ship the Toshiba 3301 complete. It includes driver software, CD-carrier, cables, manuals and two sampler CD's. Hey, if you are looking for the latest CD titles, call Mac and More.

\$579

\$45



Fax/Data Modems

COMstation FOUR \$439.00
Network Fax Modem which can receive and send at 9600 BPS. It enables you to continue working while incoming faxes are received.

NEW! COMstation FIVE \$619.00
Ultra High Speed Fax/Data Modem is 24 times faster than a standard 2400 data modem. It allows you to continue working while incoming faxes are received in the background.

PowerModem \$209.00
PowerBook modem Internal Fax/DataModem sends at full 9600 BPS and receives at 4800 baud.

TravelCom \$524.00
High-speed V.32 Data Modem is light, small, easily transported, operates on a 9 volt battery or AC Power. Receives and sends at 9600 BPS.



SONY ETC 650 Mb Magneto-Optical Drive

Only ETC Peripherals could bring you a Magneto-Optical drive using the very popular SONY drive assembly at this price. This price includes the ETC 650 Mb M-O Drive, SCSI interface cable, external terminator block, power cord, manual, and ETC Tools 2.1.

\$2995⁰⁰

ETC 650 MB M-O Drive includes one cartridge.

Features:

- Large Capacity—5.25" double-sided media for up to 650 Mbytes of formatted capacity.
- Rewriting—employs thermomagnetic recording effects for millions of rewrites.
- Reliability—stable media enables long-term archives.
- Removability—data is stored on a lockable protective cartridge for security and easy data distribution.
- Compatibility—follows ISO/ANSI standards to assure interchangeability regardless of manufacturers.
- SCSI Interface included—nothing special to order. One price, one box. Just plug it in.
- Faster Access—70 msec average seek time is an industry leader made possible by a compact and light mobile optical block

FREE!

Get a second optical cartridge free during this special promotion.



Two Great Products Two Great Deals

ETC Peripherals provides "Innovative Products on an Economical Scale." Their recent review in the January '92 issue of MacUser backs this claim up.



SyQuest TECHNOLOGY

\$599⁰⁰

ETC 88R Removable Drive

The phones haven't stopped ringing since the review came out on this drive. The ETC 88R features a SyQuest 88 MB magnetic-cartridge drive in a zero-footprint half-height drive enclosure. Included with the drive is one SyQuest 88 MB removable cartridge, SCSI interface cable, external terminator block, power cord, manual, and ETC Tools 2.1.



Introducing SuperVolumes!



ETC Tools 2.1

Special Introductory Offer Normally \$79⁰⁰

\$39

ETC Tools 2.1 is a completely new version of the formatting utility that ETC now ships with their DataPort drives—and there has never been anything like it before. Its worry-free graphic interface makes formatting and initializing cartridges and drives a snap. You'll never have to fear whether you are erasing the right drive again. You can even combine separate drives into what appears to be one giant hard disk on your desktop with ETC Tools' SuperVolume feature. There is nothing like it!

800-846-4MAC West Coast and Canada

4730 Walnut, Suite 105
Boulder, Colorado 80301

800-945-1MAC East Coast

5426 Beaumont Center Blvd., Suite 300
Tampa, Florida 33634

Mac and MORE INC.

Your Mail Order SuperStore™

CIRCLE 41 ON READER SERVICE CARD.

**TOLL-FREE
TECHNICAL SUPPORT
1-800-333-3353**

MacLand®



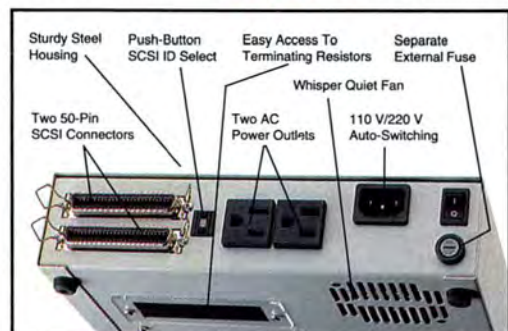
America's Macintosh Hardware Specialists

MacLand Hard Drives



**Featuring Quantum Drives,
The Highest Quality Hard Disk Drives Available!
Two-Year Warranty!**

INTERNAL		EXTERNAL	
52MB	\$239	52MB	\$299
105MB	\$349	105MB	\$399
120MB	\$409	120MB	\$459
240MB	\$659	240MB	\$709
425MB	\$1199	425MB	\$1299



Special features of both the MacLand Hard Disk Drive and the MacLand Removable Disk Drive are shown in this diagram

MacLand Removable Hard Drives



**Featuring SyQuest Drives, The Industry Standard For
Removable Media Storage!**

44MB \$429*

*Does not include cartridge

44MB
Cartridges
\$66

5 Pak-ea. **\$65**
10 Pak-ea. **\$64**



88MB \$529

88MB
Cartridge
\$109

5 Pak-ea. **\$105**
10 Pak-ea. **\$99**



NEW... HAMMER DRIVES!

EXTERNAL SALE PRICE

hammer 300	\$1,879
hammer 300fmf	\$2,299
hammer 600	\$2,449
hammer 600fmf	\$2,999
hammer 1000	\$3,559
hammer 1400	\$4,329
hammer 1400fmf	\$5,299
Pocket hammer 50	\$599
Pocket hammer 100	\$799
Pocket hammer 200	\$1,199
Pocket hammer 425	\$2,199

All Hammer hard drives (internal & external) are bundled with appropriate SCSI cable, power cord, external terminator and FWB's Hard Disk Toolkit™ SCSI utility software. All Hammer hard drives are covered by Hammer PremiumService™ and 2 year warranty.



INTERNAL SALE PRICE

hammer 300i	\$1,679
hammer 300fmfi	\$2,099
hammer 600i	\$2,169
hammer 600fmfi	\$2,699
hammer 1000i	\$3,279
hammer 1400i	\$3,979
hammer 1400fmfi	\$4,959
hammer 50is	\$379
hammer 100is	\$599
hammer 200is	\$1,049
hammer 425is	\$1,989

i-series internal drives are compatible with Macintosh II, IIfx, IIfx and Quadra 900 computers, but must be ordered with the FullHeight mounting bracket for the Macintosh II, IIfx and IIfx. Note that the hammer 300i does not need a FullHeight mounting bracket. i-series internal drives are compatible with the Macintosh SE, Macintosh II and Quadra families.



OPTICAL

External hammer Disk 600S **\$3,699**

HammerDisk optical drives include 1 free cartridge, a SCSI cable, power cord, external terminator and FWB's Hard Disk Toolkit™ software.

FREE!



With every
FWB Hammer
Drive Purchase
(139⁰⁰ Value)

Hard Disk Tool Kit..... **\$139⁰⁰**
(If purchased separately)

To Order Call 1-800-333-3353

MacLand, Inc. 4685 S. Ash Ave., Tempe, AZ 85282 (602) 820-5802

24 Hr. Fax: (602) 345-2217

Product names are trademarks or registered trademarks of their respective holders.

**AIRBORNE
EXPRESS**

Absolutely The Best Dual Page Monochrome Monitor For Your Money!



See two full pages of your document... side-by-side!

Crystal clear picture allows sharp viewing of small characters and complex graphics.

Tilt/Swivel base allows you to adjust the monitor to the most comfortable viewing position!



Brightness and Contrast controls located at top rear corner for easy adjustment.

Our RapidRepair™ program is your assurance of immediate service in the event of a problem.

30 Day Money Back Guarantee* means you have a no risk trial period!

On/Off switch located at bottom corner for easy access.



ORION TECHNOLOGIES
Dual Page Display System

\$899

Includes Video Card!

Easily Plugs Into The Following Mac Systems!



IIx • IIx+ • II



Quadra 700 • IIci • IIcx



IIsi

Requires PDS adapter...\$39



LC



SE30 • SE

*30 DAY MONEY BACK GUARANTEE TERMS:
Unconditional refund of purchase price less shipping costs.

MacLand, Inc. 4685 S. Ash Ave., Tempe, AZ 85282 (602) 820-5802
24 Hr. Fax: (602) 345-2217

Absolutely The Best Complete Page Monitor For Your Money!



**Plug-n-play
grayscale with
IIsi and Ilic!**

**30 Day Money
Back Guarantee***
means you have
a no risk trial
period!

**Our
RapidRepair™**
program is your
assurance of
immediate
service in the
event of a
problem.

Tilt/Swivel base
allows you to
adjust the
monitor to the
most comfortable
viewing
position!



On/Off switch
located in front
so you don't
have to reach
behind.

Crystal clear
picture allows
sharp viewing of
small characters
and complex
graphics.

See a full page of
your document
on the screen!

Brightness and
Contrast controls
located at front
corner for easy
adjustment.

\$459
Plug-n-play

ORION TECHNOLOGIES Complete Page Display System



Easily Plugs Into The Following Mac Systems!



IIfx • IIx • II



Quadra 700 • Ilic • Ilicx



IIsi



LC



SE30 • SE

***30 DAY MONEY BACK
GUARANTEE TERMS:**
Unconditional refund of purchase
price less shipping costs.

SIVEY ANDERSON

How would you like to have unlimited storage space? You can, with a MacLand Removable Hard Drive, featuring SyQuest removable cartridge technology. Want to use your MacLand credit card? Great! Want to apply for one? **Call today for details...**



**TOLL-FREE
TECHNICAL SUPPORT
1-800-333-3353**

ORION TECHNOLOGIES MacScan Ultra 14" Multiscan Color Monitor



This super sharp 14" color monitor features bright, vivid colors and crisp resolution. It also comes with an adjustable tilt-swivel stand for a comfortable viewing angle, and is protected by a one-year warranty, featuring our RapidRepair™ service.

\$399
Plug-n-play

*Risk-Free
30 Day
Money Back
Guarantee!**



MacLand® MEMORY

1MB **\$39**
2MB **\$85**
4MB **\$159**

LCVRAM **\$69**
Quadra VRAM **\$75**
2MB Powerbook memory **\$249**
4MB Powerbook memory **\$449**
2MB QMS-PS® 410 memory **\$199**
4MB QMS-PS® 410 memory **\$299**



Magnavox
14" Color
\$429

Two-Year Warranty

Sony
14" Trinitron
\$639

QMS-PS® 410

NEC Model 95



\$1,549 \$1,549



C.O.D.'s payable with Cashier's Check or Money Order.

All shipments made by Airborne Express standard Air which is 1-2 day service. Call for shipping costs. Products purchased in error are subject to 20% restocking fee. All prices subject to change without notice. All products subject to availability.

ATTENTION:

Businesses, Government, Educational Inst., Military

- Fax us your P.O. for same day shipment!
- P.O.'s accepted on approved accounts.
- All shipments are FOB origin.

- Prices do not include freight.
- Favorable terms offered to established accounts.
- LEASING option available... Call for details and pricing!

To Order Call 1-800-333-3353

MacLand, Inc. 4685 S. Ash Ave., Tempe, AZ 85282 (602) 820-5802
24 Hr. Fax: (602) 345-2217

CIRCLE 150 ON READER SERVICE CARD.

**AIRBORNE
EXPRESS**



Quantum

Capacity		Internal	External
50mb	3.5" LPS 9/25ms*	\$215	\$275
80mb	2.5" GO DRIVE 16ms**	\$489	Internal Only. Perfect for Powerbooks!!
105mb	3.5" LPS 9/25ms*	\$335	\$395
120mb	3.5" LPS 10ms	\$399	\$459
240mb	3.5" LPS 10ms	\$659	\$719
425mb	3.5" PRO 8ms	\$1139	\$1199

Quantum drives carry a **TWO year warranty**. 3.5" Half Height drives are the PRO series. 3.5" Low Profile drives are the LPS series. *3.5" Low Profile drives for the Mac Classic, LC and IIsi. **Perfect for Powerbooks; Dealer installation recommended. All internal drives include a mounting kit. External drives manufactured by ClubMac. Quadra 900 bracket add \$10

Seagate

Capacity	Access	Internal	External
330mb	10.7ms	\$1249	\$1349
420mb	14ms	\$1199	\$1259
645mb	11.9ms	\$1615	\$1715
645mb	15.5ms	\$1285	\$1385
1.0GIG	15ms	\$1819	\$1919
1.4GIG	15ms	\$2295	\$2395
1.4GIG	13ms	\$2999	\$3099



New Item Elite Drive

Seagate drives carry a **ONE year warranty** that can be extended up to a total of **FIVE years**. All internal drives include mounting kits. Quadra 900 bracket add \$10

FUJITSU

Capacity	Access	Internal	External
330mb	9ms	\$1119	\$1179
425mb	9ms	\$1189	\$1249
520mb	9ms	\$1249	\$1309
345mb	16ms	\$1189	\$1289
645mb	16ms	\$1259	\$1359
1.0GIG	11.5ms	\$1899	\$1999



Fujitsu drives carry a **FIVE year warranty**. All internal drives include a mounting kit. Quadra 900 bracket add \$10

SyQuest

Two Year Warranty on drive.
One Year Warranty on cartridges.

44mb	5.25" Removable Disk Drive	20ms	\$429
88mb	5.25" Removable Disk Drive	20ms	\$589
Dual 44mb	Includes (2) 44mb and ONE cartridge		\$779
Dual 88mb	Includes (2) 88mb and ONE cartridge		\$1099
44mb/88mb Combo			\$999
44mb or 88mb w/ Hard Drive			\$Call

44mb Cartridge

\$65

88mb Cartridge

\$99



Maxtor®

Capacity	Access	Internal	External
80mb	17ms	\$289	\$349
120mb	15ms	\$349	\$409
207mb	13ms	\$595	\$655
340mb	14.5ms	\$949	\$1009
535mb	12ms	\$1365	\$1425
645mb†	14ms	\$1389	\$1489
1.0GIG†	13ms	\$1829	\$1929
1.4GIG†	13ms	\$2429	\$2529



All internal drives include a mounting kit. Quadra 900 bracket add \$10

Maxtor drives carry a **ONE or TWO year warranty** depending on model. †These drives have a TWO year warranty, and only fit inside Large Macs.

ClubMac

1-800-854-6227

Visa & MC Accepted, No Surcharge • All Prices, specifications, features and system requirements subject to change without notice • Not responsible for typographical errors • All Hard drives carry 30 day money back guarantee • Prices do not include freight • All specs are from the manufacturer

ClubMac • 3 Musick • Irvine, CA 92718 • Tech Support (714) 768-1490 • 24 Hour FAX (714) 768-9354 • Info & International (714) 768-8130

CIRCLE 46 ON READER SERVICE CARD.

We're proud of our reputation.

"...The Good Housekeeping Seal. I'm now taking the safer course of buying from corporate-owned companies such as Quantum-backed La Cie..."

MacWeek, February 1991

"Between the good sales support and tech support that go the extra mile, La Cie is tops in my book!"

Bill Ringle, Philadelphia, PA

"La Cie offers the leading combination of software and performance."

Macworld, March 1990

The La Cie tradition of pride.

Pride in our products. Pride in our commitment to customers. Pride in who we are. At La Cie, "pride" has fueled each and every step in our success. Since our very first product, La Cie has earned an unsurpassed reputation for excellence. Top-rated performance. Award-winning design. From our sleek mass storage solutions to our Silverlining software, no other company in our industry has earned greater acclaim. Or appreciated it more.



To order or for more information, call toll-free

800-999-0143

6 a.m.-6 p.m.PST Mon.-Fri.

International 503-691-0771 Fax 503-691-5590

We're proud



La Cie PocketDrive

When size really counts.

As a Quantum Company, La Cie offers customers the advantages of \$489 million in assets. Deep-pockets R&D. State-of-the-art technology. Superior value. And, the assurance of long-term support. Yet for all our size, La Cie's smallest achievements still make our biggest headlines.

Introducing the PocketDrive™

Portability in the palm of your hand.

Pack it in your pocket, purse or briefcase. La Cie's new 40MB and 80MB power-packed PocketDrives offer ounces of convenience,

La Cie 40MB PocketDrive

\$499

not pounds. Using Quantum's new 2 1/2" drive, the PocketDrive offers 19ms seek time, whisper-quiet operation and La Cie's exclusive switchable termination and SCSI ID.

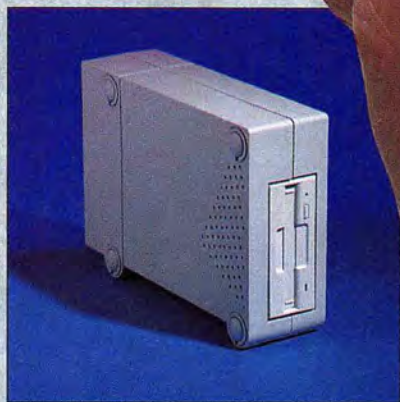
Desktop docking.

La Cie's PocketDrive eliminates the hassle of fumbling with cables at the back of your Macintosh every time you connect or disconnect the drive. Instead, the PocketDrive comes with a unique PocketDock™ desktop docking cable that lets you plug in the PocketDrive in seconds. With a second PocketDock (only \$99), you can have fast and easy connection at work and at home. There's even a miniature T-connector (only \$59) for connecting to other Macintosh systems.

Pocket Silverlining and an extendible 2-Year warranty.

Every PocketDrive comes complete with one PocketDock, our award-winning Silverlining hard disk management software and our extendible 2-Year Limited Warranty. For only \$1 per MB, you can enjoy 72-hour warranty service for up to 5 years.

of our size.



La Cie CirrusOptical Drive



Set your sites on a CirrusOptical™ magneto optical drive.

Introducing CirrusOptical. La Cie's remarkable new 3 1/2" magneto optical drive that offers massive storage capacity, superb reliability and high-speed performance in a compact case.

Space consciousness.

Smaller, faster and less expensive than conventional optical drives, La Cie's CirrusOptical uses cartridges that are the same size as 3.5" floppies, but store eighty-eight times more data than high-density floppy disks. Engineered to fit within our space-saving, award-

winning Cirrus case, the CirrusOptical offers the reliability of optical media, 30ms seek times and the economy of renewable cartridges.

La Cie MicroOptical Drive

\$1699

Lose Weight. Lose Wait.

Until now, optical technology had a reputation for being slow. CirrusOptical drives at 45ms are faster than the conventional opticals. La Cie's CirrusOptical leaves the others in the dust.

Try one on for size.

When you need major-league performance in a pint-sized package, call us. We offer surprisingly small prices and a huge commitment to service and support.

I'm now taking the safer course of buying from corporate-owned companies such as Quantum-backed La Cie..."
MacWeek

LACIE
LIMITED
A QUANTUM COMPANY

To order or for more information, call toll-free
800-999-0143
6 a.m.-6 p.m.PST Mon.-Fri.
International 503-691-0771 Fax 503-691-5590

We're proud

La Cie DAT Drive

La Cie ExpressDrive



La Cie Tsunami

The drive to satisfy.

At La Cie customer satisfaction is the driving force behind everything we do. From our innovative product design to our capable, courteous customer support, La Cie goes the extra mile to assure you quality, service and value.

La Cie award winning chassis. Quantum power under the hood.

Sleek. Streamlined. Easy handling. Economical. La Cie drives deliver the advantages of award-winning design and state-of-the-art technology. Inside and out. For high-speed performance you can depend on, all La Cie hard drives up to 400MB incorporate the world's most respected and most trusted drive mechanisms—Quantum!

La Cie hard drives from

\$299

Internals. Space savers. Portables.

La Cie offers customers a complete line of hard disk drives featuring state-of-the-art components, whisper-quiet half-speed fans, access times as low as 15ms, wide-range power supplies and La Cie's exclusive switchable termination and SCSI ID.

- 50MB-1.6GB Internal
- 50MB-1.6GB ZFP
- 50MB-400MB Cirrus
- 50MB-400MB Tsunami
- 50MB & 100MB Bacster™
- 40MB & 80MB PocketDrive

Drive the La Cie Express.™

We love all our drives, but take a look at our newest arrival.

La Cie's new ExpressDrive™ Perfect for sensitive installations, the ExpressDrive is empowered with the performance of a Quantum fixed drive and the security and convenience of a removable drive, yet none of the risks of open-air media.

ExpressDrive from

\$Call

of our drive.

La Cie Cirrus

La Cie CirrusOptical Drive

La Cie PocketDrive



La Cie ZFP Drive

Readable. Writable. Removable.

Economical, versatile, ideal for archival backup, La Cie's comprehensive line of removable media options includes:

- Removable cartridge drives
- ExpressDrive
- 3 1/2" & 5 1/4" magneto opticals
- CD ROM

Every drive has a Silverlining.

Acclaimed the most powerful hard disk manager available, La Cie's Silverlining is included free with every hard drive!

Tape backup with Retrospect.

Tape drives from

\$649

Tucked neatly inside our Cirrus case, La Cie's 155MB or 600MB tape drives and 1.2GB or 2.0 GB DAT drives come with Retrospect software offering easy, economical data protection.

Up to 5-year warranty.

Ask about our generous warranties. La Cie offers up to a 5-Year Limited Warranty on Quantum drives and a speedy 72 hour turn-around on all warranty service!

Ready for a drive.

Don't let the quest for the right mass storage solution drive you wild. Call us. Our friendly, highly qualified staff will gladly help you select the perfect device to suit your needs and budget.

"Silverlining has bailed me out of so many tough situations, I've lost count."
Bobker's Dozen Best, MacUser, December, 1990

"La Cie hard disks are the most reliable and convenient disks I've ever had..."
James J. Haf, Lansing, MI

LACIE
LIMITED
A QUANTUM COMPANY

To order or for more information, call toll-free

800-999-0143

6 a.m.-6 p.m. PST Mon.-Fri.

International 503-691-0771 Fax 503-691-5590

We're proud



Microtek 600ZS

\$2,195*



Howtek Scanmaster 3

\$8195**



La Cie Silverscanner

\$1,399



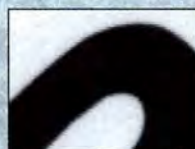
Microtek 600ZS
300 dpi at 1600%



Howtek Scanmaster 3
300 dpi at 1600%



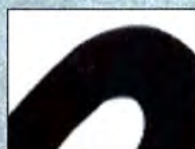
La Cie Silverscanner
300 dpi at 1600%



Microtek 600ZS
600 dpi at 800%



Howtek Scanmaster 3
400 dpi at 1200%



La Cie Silverscanner
600 dpi at 800%

Image is everything.

We believe quality is a priority. Our image as a company that produces quality products is well known. We're so confident in the quality of our scanner image that we are willing to compare it to other scanners right here. Compare for yourself.

Great color the first time.

Just look at the difference in the color scans. The single-pass Silverscanner has three separate noble gas-filled lamps for red, blue and green that are balanced so you get great scans the first time. With Silverscanner's built-in gamma correction, you get clean, bright scans with excellent detail in those hard-to-get areas that don't require difficult adjustment like other scanners. This can mean substantial time savings when every second counts.

The shadow knows.

Do you want good shadow detail? Then compare the black and white scans. The Silverscanner can give you production quality gray-scale scans for magazines, newspapers and brochures.

Lay it on the line.

When comparing line art, the Silverscanner really shines! At 1200 dpi you get what amounts to an *electronic stat*. The comparison is incomplete, however, because some scanners don't have hi-res capability (too bad). But even if you compare at 400 or 600 dpi, it's clear how much better the Silverscanner is, especially bundled with Color It!

La Cie Silverscanner with Color It

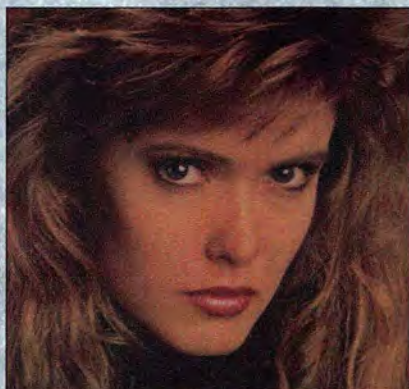
\$1399

Price does not include shipping. Add 5% surcharge for American Express. Add sales tax where applicable. La Cie is a trademark of La Cie, Ltd., a Quantum Company. All other trademarks are the property of their respective companies. *Price advertised in Macworld, Sept. 91. **From Howtek price list, effective 3-1-91. All specifications, terms, descriptions, products and services herein are subject to change without notice or recourse. Bundles in U.S.A. only. Ad design and production by Graphic Witness. Subject photos by Dennis Carney. © Copyright 1991 La Cie, Ltd., 19552 SW 90th Court, Tualatin, OR 97062. Phone: (503) 691-0771, Fax: (503) 691-5590. All rights reserved. Printed in U.S.A.

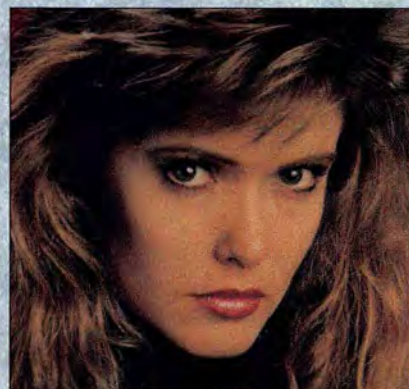
of our image.



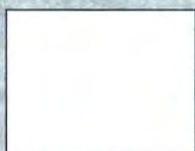
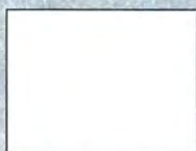
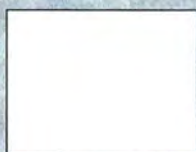
Microtek 600ZS



\$2,195* Howtek Scanmaster 3



\$8195** La Cie Silverscanner \$1,399



Microtek 600ZS
1200 dpi at 400%—n/a

Howtek Scanmaster 3
1200 dpi at 400%—n/a

La Cie Silverscanner
1200 dpi at 400%

All scans were done at default settings with no corrections. The color images were separated using Adobe Photoshop. The logo was scanned as grayscale and as line art. This entire ad was done on the Macintosh using Silverscanner, Photoshop, Quark XPress and a PostScript Imagesetter. The entire production cost was \$145.



La Cie Silverscanner
1200 dpi at 100%



Software to die for!

We're proud of our image when it comes to quality software, too. La Cie has always had a reputation for powerful, well-written software. La Cie's exclusive plug-in modules for Photoshop, ColorStudio, Digital Darkroom, Enhance, ImageStudio and RagTime have been hailed as some of the best software ever written for flat-bed scanners. Enjoy features like fast dynamic **color** previews, independent color/brightness controls, nine scan modes, savable scan settings, color dropout, magnified previews, proof scans, 25% to 400% scaling in 1% steps, and 25 dpi to 1200 dpi in 1 dpi steps.

Silverscanner is OCR and Apple System 7 compatible and can be purchased with full versions of Adobe Photoshop and Letraset's ColorStudio—a \$2139 value for only \$1899!

La Cie Silverscanner with
Photoshop and ColorStudio

\$1899

Who ya gonna call?

La Cie offers you toll-free expert technical support. We know scanning inside and out. We can help you. And we'll be here for you tomorrow because La Cie is a Quantum Company.

Seeing is believing.

La Cie is so proud of the Silverscanner, we used it to produce this ad. Not just the comparisons, **everything**. Call and order yours today.

*"The choice is clear . . . buy the La Cie Silverscanner."
Macworld, June 1991*



To order or for more information, call toll-free

800-999-0143

6 a.m.-6 p.m. PST Mon.-Fri.

International 503-691-0771 Fax 503-691-5590

We're proud of our value.

50MB Quantum **\$299***

50MB.....	\$299 Int.	\$339 Ext.	155MB Tape Drive.....	\$649
100MB.....	\$429 Int.	\$479 Ext.	600MB Tape Drive.....	\$999 \$1199
120MB.....	\$529 Int.	\$579 Ext.	1.2-2.0GB DAT Drive.....	\$1499 \$1799
240MB.....	\$729 Int.	\$789 Ext.	128MB CirrusOptical.....	\$1699
400MB.....	\$1399 Int.	\$1499 Ext.	ExpressDrive.....	\$Call
1.2GB.....	\$2009 \$2749 Int.	\$2099 \$2899 Ext.	Silverscanner	\$1399
80MB PocketDrive.....	\$649		Silverlining	\$149

Call for products not listed.

You'll be delighted at La Cie's competitive prices. Especially when you consider what you get absolutely free. Like our acclaimed Silverlining software. Five megabytes of public domain software. A 2-Year Limited Warranty on Quantum mechanisms (extendible to 5 years). 72-hour turn-around on warranty service. Prompt, courteous, competent service.

At La Cie, we take pride in the unsurpassed value we offer customers. From our state-of-the-art technology to our award-winning design, La Cie never stops working to bring you better products and services than ever before. And because we're a Quantum Company, you can be assured La Cie will continue to provide you service and support for years to come.

LACIE
LIMITED
A QUANTUM COMPANY

To order or for more information, call toll-free

800-999-0143

6 a.m.-6 p.m.PST Mon.-Fri.

International 503-691-0771 Fax 503-691-5590

*Prices subject to change. Please call for lowest current prices and volume discounts.

*a new
Design
Concept...*



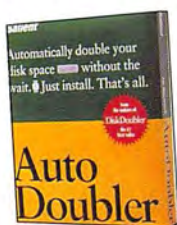
\$54⁹⁵
(Retail \$79.95)
School Version \$94.95
Lab Pack \$199.95



\$27⁹⁵ each
(Retail \$39.95)
MacPaint
School Spirit EPS \$55.95



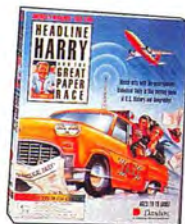
\$36⁹⁵
(Retail \$59.95)
School Version \$46.95
Lab Pack \$109.95



\$48⁹⁵
(Retail \$79.95)



\$28⁹⁵
(Retail \$49.95)
School Version \$44.95
Lab Pack \$97.95



\$35⁹⁵
(Retail \$59.95)
School Version \$49.95
Lab Pack \$144.95

Educational Macintosh Catalog

Spring 1992



YOUR #1 SOURCE FOR EDUCATIONAL SOFTWARE & TECHNOLOGY

**EDUCATIONAL
RESOURCES**

USA/Canada Toll Free
800-624-2926

In Illinois Call
708-888-8300

- Lowest Prices Everyday
- Thousands of Titles Available: Software, Education, CD-ROM, Productivity, LaserDiscs, Entertainment • Fast Service and Delivery
- School, Lab Pack and Network Versions Available
- Nationwide Toll Free Service



**GREAT SERVICE!
LOWEST PRICES!**

Designing the Mind

*Call now for your
FREE Educational
Macintosh Catalog!*

EDUCATIONAL

**USA/Canada
800-624-2926**

**Illinois
708-888-8300**



Your #1 Source for Educational Software & Technology

RESOURCES

1550 Executive Drive • Elgin • Illinois • 60123



• Prices effective through July 31, 1992 • Checks & School P.O.'s welcome • \$25 min. on charge cards • Free shipping over \$300 in U.S.
• Under \$300 add 5% shipping w/ \$4.00 min. • Canada under \$200 add 10% w/ \$5 min. / over \$200, add 5% — also add 7% GST

CIRCLE 112 ON READER SERVICE CARD.

**Save
up to
60%**

Move Over SyQuest,TM Optical Just Got Affordable.



Introducing the DGR Technologies 3.5" 128MB Read/Write Optical Drive

"With their high capacity, imperviousness to magnetic fields, and small size, 3.5-inch erasable optical drives promise to be a superior alternative to magnetic SyQuest, Ricoh, and Bernoulli drives." – MacUser, November '91

SyQuest revolutionized hard disk storage with **portability** and speed. Now, DGR Technologies ups the ante: 128 megabytes of removable, erasable optical storage on **fast**, ultra-reliable 3.5" disks. The 128REMTM represents substantial media savings over SyQuest 45MB and 33MB technology – do the math. The real savings, though, is peace of mind. Optical storage spells **reliability**: No more head crashes and no more magnetic data corruption. Above all, the **128REMTM** is built to perform. 9 millisecond short seek time and a built-in 128K buffer translate into significant improvements over current removable standards – giving you the capacity and **performance** you've been waiting for. The 128REMTM is built with the future in mind, conforming to both ANSI and ISO standards, ensuring future **compatibility**. Price. Performance. Reliability. The DGR Technologies 128REMTM.

\$1,499



The DGR 128REM Now Includes
FWB's Hard Disk ToolKit Lite!

\$75 128 Megabyte
Optical Cartridge

3.5" Erasable Disk
Cartridges

1yr Direct Replacement
Warranty

30 Day Money
Back Guarantee



To Order Call TOLL FREE Monday-Friday 9am to 6pm CST
DGR Technologies accepts MC, Visa, Discover, Pre-Paid, COD, & Wire Transfer Orders.

**Order
Direct**

800-235-9748

DGR Technologies • 1800 Rio Grande, Suite 205 • Austin, Texas 78701 • 512/476-9855 • Fax 512/476-6399



CIRCLE 242 ON READER SERVICE CARD.

PowerBooks GO•80 with Quantum \$599



Fast, Lightweight, Advanced

Quantum's Go•Drives combine fast time-to-data and sustained data transfer rates with low power consumption.

Go•Drives are lightweight—only 8 ounces in a 2.5 inch form factor.

Full compatibility with PowerBook sleep modes.

They are faster, more reliable, and have a higher capacity than internal drives shipped in the PowerBooks.

GO•Drives are based on the ProDrive® architecture with the technological innovations to meet the needs of Mac PowerBook 140 and 170 models.

Their fast spin-up times help prolong battery power; and ECC on-the-fly helps minimize the impact of errors on throughput.

GO•Drives include Quantum's proprietary DisCache® and WriteCache™ firmware.

Uniform Cap.....82MB
Form Cap80MB
Avg Seek16ms
Sus Trnsfr .1.5MB/Sec
Cache32K
Disks2
Heads4
Interface ...SCSI 1 or 2
MTBF80,000 hrs
Warranty 1yr.

**1-800
235-2750**



M-F 8:30AM-7PM CST
SAT 10AM-4PM CST

INTERNATIONAL:
1-816 478-8300
FAX: 1-816 478-4596
(24 HRS)

TOLL FREE UK:
0800-897-545.
TOLL FREE AUSTRALIA:
0014-800-125-875

Prices & Specifications Subject to Change Without Notice

Quantum

240^{mb} \$699



All external drives available in your choice,
Zero-Footprint or Compact Portable case.

MB	INTL	EXTL
52	\$229	\$299
60-80	599	N/A
105	339	429
120	449	539
240	699	789

Just ask away. When you phone, you have a right to expect courtesy, logic and a helpful attitude. Many people ask us questions about hard drives, SCSI addresses, termination, etc. We may not know all the answers, but we'll try to find any we don't have. If you decide to place an order, that's nice too.
*Only While Quantities Last.

Maxtor

340^{mb} \$999



High speed drive selections available for all
Mac II models, Classic, SE & SE/30

MB	INTL	EXTL
120	359	439
213	579	679
340	999	1099
535	1549	1649
760	1649	1799
1.2G	2299	2499

Prices & Specifications Subject to Change Without Notice.

For a limited time, with any drive purchase, you can buy Redux™ or Init Picker™ by Microseeds Publishing, or CalendarMaker™ by CE Software. Any one, \$20; any 2, \$33.95; all three, \$44.95.

WREN
600MB
\$1399

MB INTL EXTL
330 1349 1449
425 1499 1599
600 1399 1549
630 1699 1799
1.2G 1949 2099

• **30-Day Money-Back Guarantee** •
All Drive products carry a 30-day money-back guarantee. Your risk in the transaction is the cost of shipping.

• **Disk-for-Disk Replacement Warranty** •
Quantum, Maxtor, Syquest and ARDAT Drives carry a two-year "parts & labor" disk-for-disk replacement warranty. WREN, Teac, WangDATdrives and Syquest Cartridges carry a one-year "parts & labor" disk-for-disk replacement warranty.

• **Brackets and Cables Included** •
All Hard Drives include brackets, cables, cords and LED's required for operation in the specified Macintosh. All Hard Drives come pre-formatted with Apple's latest stable all-platform System software, 13mb of compacted shareware, and the "ALLIANCE POWER TOOLS" SCSI formatter/hard partitioner.

• **Toll-Free Technical Support** •
Toll-Free Technical Support, 9:30am to 7pm Monday thru Friday, Central Time. As often or for as long as you need.

• **Prices and Specifications subject to change without notice** •

SyQuest
88MB
\$699



SQ-555 44mb \$479
SQ-5110 88mb 699
SQ-555 Dual 899
SQ-5110 Dual 1449

Toshiba
CD ROM
\$579



3301 \$579
Limited offer includes free
"Nautilus," "Showcase" CDs

Tape
-based sub-systems
includes
one cass.& Retrospect
Add'l cass. \$17-\$24



APS DAT \$1899
Archive-based Mechanism
2.6gb Compression DAT

APS DAT 1499
Archive-based Mechanism
Desktop and Portable Units

TEAC 155 599
WangDAT 1799

*Quality,
Economy,
Toll-free
Support,
1- & 2-year
Warranties*

**1- and
2-Page
Monitors**



Sampo Dual Page \$799
Mono w/Lapis card for
SE, SE/30, and NuBus Mac IIs



TriAm Full Page \$499
16 grays w/Si, Ci, and
Quadra built-in video

TriAm Full Page 799
256 grays w/Lapis card for
SE/30, LC, and Mac IIs

AMEX ACCEPTED

GOV., UNIV., PO's, NO SURCHARGE



VISA/MC, DISCOVER NO SURCHARGE
ACCEPTED CORP. PO's, NO SURCHARGE

Toll Free U.S. & Canada

1-800 235-2750

M-F 7AM-9PM CST SAT 10AM-4PM CST

TOLL FREE UK: 0800-897-545. TOLL FREE AUSTRALIA: 0014-800-125-875

INTERNATIONAL: 1-816 478-8300 FAX: 1-816 478-4596 (24 HRS)

ALLIANCE PERIPHERAL SYSTEMS. 2900 S 291 HWY. LOWER H. INDEPENDENCE MO 64057

CIRCLE 147 ON READER SERVICE CARD.



"Not sure what works best? Call us today."

Call 1-800-367-4222 US & Canada • Visa/MC/AMEX accepted

Workspace

Ark 700 Change your PERSPECTIVE! A "real" working environment that simplifies and automatically organizes working on a computer. A visual project organizer, document manager and automatic time tracker. See a "snapshot" of each project document and access all your applications and projects from one "place"!



\$788

Bernoulli Transportable 90 Meg

IOMEGA 700 Long known for reliability, IOMEGA now offers fast, 19 millisecond access time, and affordable removable storage with a 5-year warranty. Durable in design and built for speed.



Gallery Effects/SuperPaint 3.0

Aldus 700 MacEddy Award Winner Gallery Effects auto transforms grayscale and color bitmap images into stunning, sophisticated art, with 16 master effects, including Graphic Pen and WaterColor. Super new version of SuperPaint combines painting, drawing, and image enhancement. Includes 1 thru 24 bit color, textures, gradients, Bezier editing and EPS import.

Frontier

UserLand Software 7 Now you can write scripts to drive graphics, page layout, file management, electronic mail, and utilities. You get over 100 sample scripts that you can use right away or modify. Customize, automate, and simplify the Mac operating system, file system, networks, and System 7 compatible applications.

BeagleWorks

Beagle Brothers 700 The true meaning of integrated software has finally been defined. Includes seven modules so fully integrated you can easily access the Word Processor, Database, Spreadsheet, Chart, Paint, Draw and Communications modules from anywhere in the program using revolutionary In-Contexting Editing™. Ask about the competitive upgrade for \$98.

PhotoDisc

PhotoDisc, Inc. 700 High quality and print resolution color stock from 25 professional photographers. Over 400 photos ready to instantly use in print, presentation and multimedia. Includes 50 Bonus backgrounds and textures. Features LightBox® Image file manager.

Canvas 3.0/Canvas 3.0: The Book

Deneba 700 Supports Publish and Subscribe, Balloon Help, TrueType and custom Apple events. Also offers professional text handling features like character-to-character font scaling, font conversion to Bezier curves and much more. Too many extras to list here. Also for \$14 more get Canvas 3.0: The Book from Peachpit Press.

Cricket Graph /Cricket Draw III

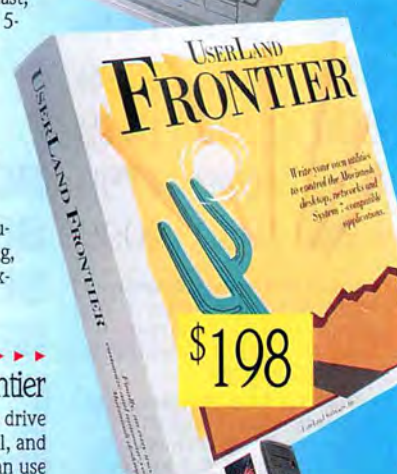
Computer Associates 7 Cricket Graph - Quick and easy to use charting application ideal for anyone who needs to create graphs for reports, presentations or data analysis. Cricket Draw III - intuitive, object-oriented drawing program, produces professional-quality graphics. Both entry level and skilled users will appreciate it's ease of use and power.



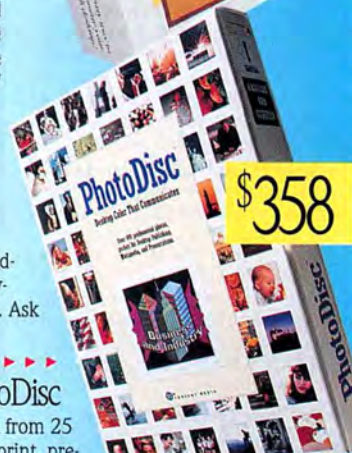
\$79



\$128ea



\$198



\$358



\$184



\$248/14



\$84/168

Mac'sPlace

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

System 7 Compatible System 7 Savvy 30-60 Day Money Back Guarantee



Bill bought from a mail order company that doesn't *really* know Macs.
He's beginning to pay the price.

Poor Bill. In his rush to equip his new Mac, he ordered from the first mail order ad he saw. He had a few doubts when the phone person couldn't answer his questions, but brushed his worries aside. As soon as his order arrived from Mail Order Company X, things started to go awry. His software seized. Then his hard drive crashed. Soon Bill was tossed out on the street, in search of another job. If Bill had only ordered from Mac's Place, he'd have a corner office by now. You see, here at Mac's Place we run the whole business *entirely* on Macs*, so you can bet we know exactly what works...and what doesn't. And since we love to answer Mac questions, don't hesitate to phone. If you don't, you could be joining Bill at your nearest Resume Workshop.

Mac's Place™

Our Hours: Monday through Friday 6AM-10PM PST and Sat/Sun 6AM-6PM PST Call **1-800-367-4222** US & Canada

* We understand Macintosh products better than anyone because we work on them every day. And since our sales consultants aren't paid on commission like other companies we know, we'll guide you to exactly the right products that will work best for you. Our only job is to make you happy. That's what customer service is all about. Right?

"The *only* place that's Mac compatible." —Mac

Call 1-800-367-4222 US & Canada • Visa/MC/AMEX accepted

WalkThrough 1.1

Virtus 7 Put your ideas into action. The latest version of this award winning 3-D drawing program provides everything you need to quickly capture and explore your ideas in 3-D. Version 1.1 includes real-time 3-D presentations, QuickTime® and PICS animated movies, and perspective pictures as well as data exchange capabilities for 2-D DXF, 3-D DXF, EPS, PICT, Claris® CAD and MacDraw.

\$308

Fair Witness

Chena 7 Winner of the 1991 MacUser Editors' Choice Award for Best Organizational Tool! It's an information spreadsheet. Create an outline. Add columns for numbers, formulas, text, pictures, dates. See a time chart with a single click. Sort, search, and save views for quick access to your information.

\$315

On Cue II

ICOM Simulations 7 Move from one program to another instantly, bypassing the desktop maze, eliminating "window buildup," and ending the frustrating wait for folders to open and close. Works smoothly, quickly, and efficiently.

\$64

Soft Node 1.0/Universal SoftPC 2.5

Insignia 7 Add SoftNode to either Universal SoftPC or SoftAT and your Mac will run MS-DOS applications and share programs over a Novell PC Network! With SoftPC, your next IBM computer could be a Macintosh.

\$105/194

Wealth Builder

Reality Technology 7 Designed for the individual investor and perfect no matter what your level of expertise. Gives you objective information on up to 1200 mutual funds and 10,000 stocks and bonds. Earn more by investing wisely and saving more.

\$94

PowerBook RAM

Mac's Place 7 PowerBook RAM-

Now available! Upgrade your Powerbook 100, 140 or 170. Expand to 4, 6 or 8 megabytes Available from Mac's Place.

Call for latest price.

Call

WindoWatch (single user)

ASD 7 A new transparent window tracking utility which operates in the background, automatically generating a timesheet as you work. Designed for groups who bill services by the hour, it enables timesheets to be collected over the network.

\$88

nuBASE Pro 1.5

New Era Software 7 New version. Create custom applications quickly and easily. The most powerful relational database available for the Mac, allows you to take advantage of most System 7's powerful features. Designed for both novice and experienced programmers. RunTime vers. available. LAN Manager-June '92.

\$248

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

7 System 7 Compatible 7 System 7 Savvy 30-60 Day Money Back Guarantee

Mac's Place

- The RailGun 030 is Available for the Macintosh Plus, SE, & Classic



- Available in 16, 25 & 33MHz Accelerations
- System 7 Compatible



NEW! RailGun 030Pro System includes 68030 Accelerator & Display In One Package

- Includes RAM-Disk capabilities & up to 16MB of RAM Expansion!

- "The Magic 45R is one of the best SyQuest drives available, offering high speed and high quality."
—MacUser Magazine



- External Drives Include Magic Case with 40 watt power supply and two external outlets



- All MagicDrives Include 2 year warranty!

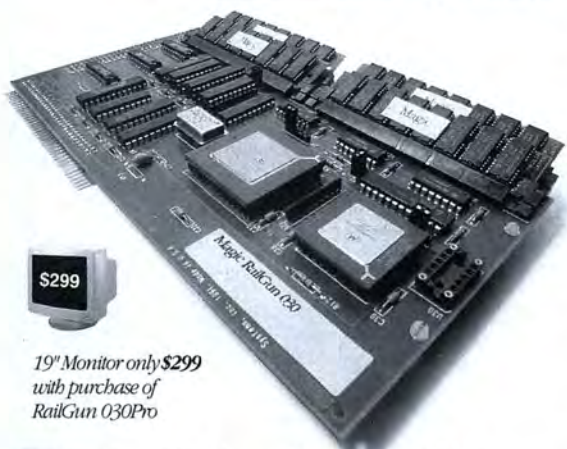


- All MagicDrives include a 30 day money back guarantee!

- All MagicDrives Include cable & FWB Drive Software!

MagicRAILGun 030

68030 Accelerators for the Macintosh SE, Classic, & Plus



\$299

19" Monitor only \$299
with purchase of
RailGun 030Pro

NEW RailGun 030Pro Systems beat the competition!

- Up to 4X faster than Mobius Display Systems.
- 30% More display area than Mobius Display Systems.
- Available as separate accelerator, accelerator with video or the whole complete system including Monitor & Accelerator.
- Compatible with Radius, E-Machines Sigma, Monitem, Nutmeg, Ehman, Mirror, Supremac RasterOps & more.

RAILGun 030 PRO SYSTEMS*

16MHz RAILGun PRO & 19"	.....\$899	.....\$599
25MHz RAILGun PRO & 19"	.....\$999	.....\$799
33MHz RAILGun PRO & 19"	.....\$1299	.....\$1099

*Add \$99 for Classic or Plus Version

RAILGun 030

Magic RAILGun 16MHz	.....\$399	.....\$12
Magic RAILGun 25MHz	.....\$599	.....\$18
Magic RAILGun 33MHz	.....\$899	.....\$27
16, 25, or 33MHz MATH CoProcessor	.....\$49	.....\$1
RailGun SCSI Accelerator	.....\$49	.....\$1
Magic CACHE IIci	.....\$169	.....\$5

MagicMATH 030

The Magic MATH 030 adds System 7 Virtual memory capabilities and built-in math coprocessor to your Macintosh LC and Classic II.

Magic LC030 with CoProcessor	.....\$199	.....\$6
Magic MATH LC CoProcessor	.....\$99	.....\$3
Magic MATH Classic II CoProcessor	.....\$99	.....\$3
Magic IIci 2 Slot Card with FPU	.....\$99	.....\$3

MagicHARDDrives

Fixed, Removable, Optical & Tape Mass Storage Solutions



FWB Hard Disk ToolKit Lite
Now Included with all
Magic Drives!

Since 1985 MacProducts has been supplying Magic solutions for the Macintosh. The fact is, no other company has been continuously delivering hard drives and memory upgrades to the Macintosh community longer than MacProducts USA. This shows in the integrity of our products and in the service you can expect.

**Optical
Price
Drop!
\$1399**

Magic 128Optical

28ms access time • Indestructible media!
Includes FWB Hammer Hard Disk ToolKit Lite
Magic **128MB** REM Optical\$1399\$42
Magic **128MB** 3.5" Cartridges\$79\$2

Now Includes FWB Hard Disk ToolKit Lite!

Internal Kit \$29 • External Kit \$99

Magic 40MB Hard Drive*	.....\$199	.....\$6
Magic 52MB Quantum LP	.....\$239	.....\$7
Magic 100MB Hard Drive	.....\$299	.....\$9
Magic 105MB Quantum LP	.....\$369	.....\$11
Magic 240MB Quantum LP	.....\$699	.....\$21
Magic 425MB Seagate	.....\$1299	.....\$39
Magic 600MB Seagate	.....\$1499	.....\$45
Magic 600MB Wren Runner	.....\$1599	.....\$48
Magic 1.2GB Seagate	.....\$1999	.....\$60

*One Year Warranty Only

Magic 45R & 88R

Includes Magic case with 40 watt power supply!
Magic **45R** SyQuest Drive\$449\$13
Magic **88R** SyQuest Drive\$549\$16
SyQuest **45 & 88** Cartridges\$69/\$119\$2

MagicTape

Includes Retrospect Automated Archiving!

Magic 150MB Tape Backup	.....\$699	.....\$21
Magic 525MB Tape Backup	.....\$999	.....\$30
Magic 1.3GB DAT Backup	.....\$1695	.....\$51
Magic 2.0GB DAT Backup	.....\$1695	.....\$51
Magic 2.4GB 8mm Backup	.....\$2895	.....\$87
Magic 5.0GB 8mm Backup	.....\$4499	.....\$135

MacProducts USA 1-800-622-3475

Fax 512-499-0888
Tel 512-472-8881
Singapore 65-287-5181
Canada 800-624-9307

Customer Service
(512) 472-8881 ext 631
Technical Support
(512) 472-8881 ext 628

Hours M-F 8am-9pm
Sat 9am-6pm
608 West 22nd, Austin, TX 78705
Returns: Returns require an RMA#.

Call (512) 472-8881 Ext 625.
Returns subject to a restocking fee.
Opened software NOT returnable.
Prices subject to change & availability.

"Call to get a free issue of our Premier Catalog."

Graphic Simulations

7 HELLCATS Over The Pacific 39.

Inline Design

7 3 in Three 29.

7 Darwin's Dilemma 29.

7 Mutant Beach 40.

7 Swamp Gas 29.

7 Tesseract 29.

Lucasfilm Games

7 Indiana Jones/Last Crusade 28.

7 Loom 29.

Mallard Software

7 Flight Simulator Add-Ons 30.

7 Scenery Upgrade I-IV ea. 30.

MicroProse

7 Railroad Tycoon 40.

Microsoft

7 Flight Simulator 4.0 42.

Sierra On-Line

7 Space Quest IV 36.

Sir-Tech Software

7 Wizardry 29.

7 Wizardry: Bane/Cosmic Forge 36.

7 Wizardry: Knight of Diamonds 32.

Software Heaven

7 OIDS 25.

Software Toolworks

7 Life And Death 29.

Spectrum Holobyte

7 Tetris 23.

7 Vette 34.

7 WordTris 24.

Strategic Simulations, Inc.

7 AD&D: Silverblades 38.

7 AD&D: Curse of Azure Bonds 38.

Strategic Studies Group

7 American Civil War Vol 1 30.

7 Gold of the Americas 30.

7 Panzer Battles 28.

7 Reach for the Stars 30.

7 Rommel Battles for N. Africa 28.

7 Warlords 38.

Three Sixty Pacific

7 Harpoon 39.

7 Harpoon BattleSet #2 or #3 20.

7 Harpoon Scenario Editor 26.

Velocity

7 Spectre 38.

Virgin Games

7 Monopoly 30.

7 Scrabble Deluxe 30.

HARDWARE

Applied Engineering

7 AEHD Superdrive 219.

7 Cache-In 50 Ilii w/68882 1898.

7 FastMath LC(68882 16Mhz) 138.

7 Classic Memory Card 1-MB 108.

7 QuickSilver Ilii 239.

TransWarp Accelerators

7 LC 33Mhz w/FPU 998.

7 LC 40Mhz w/FPU 1378.

7 LC 50Mhz w/FPU 1498.

7 SE 25Mhz w/FPU 788.

7 SE 40Mhz w/FPU 1498.

Asanté

7 10T Hub/12 548.

7 10T Hub/8 268.

7 MacCon3 Ilii 218.

7 MacCon3 NB 218.

7 MacCon3 SE 218.

7 EN/SC 298.

7 EN/SC PowerBook 348.

7 EN/SC 101 258.

7 EN/SC 101 PowerBook 288.

Caere

7 Typist + Graphics 468.

Cayman Systems

7 GatorBox 1949.

Dayna Communications

7 EtherPrint-T 338.

7 EtherPrint-T Plus 598.

DaynaPORT Ethernet Cards

7 E/30 198.

7 E/II 228.

7 E/LC-T 208.

DayStar Digital

7 Fast Cache Ilii 64K 259.

7 PowerCache/SE/30, all Ilii, and LC/ 259.

7 33Mhz 698.

7 40Mhz 858.

7 40Mhz w/FPU 1148.

7 50Mhz 1358.

7 50Mhz w/FPU 1589.

Dove

7 DoveFax Desktop Plus V2.0 349.

E-Machines

7 Color Displays 1045.

7 ColorPage E16 1398.

7 ColorPage T16II 1698.

7 Color Interface Cards 328.

7 DoubleColor 395.

7 DoubleColor LC 568.

7 Futura EX 1298.

7 Futura MX 878.

7 Futura SX 698.

7 Futura SX/8 698.

7 Ethernet/Video Cards 658.

7 ColorLink EX/T 998.

7 ColorLink SX/T 998.

Everex

7 EMAC 150-MB Tape BU 678.

Farallon

7 MacRecorder 2.0.5 172.

7 PhoneNET 29.

7 Connectors 29.

7 Connector (10Pk) 195.

Global Village

7 TelePort 179.

7 Fax 9600 (Send Only) 248.

7 Full Fax (S/R) 498.

7 PowerPort/V.32 498.

Harris Labs

7 Performer 239.

7 16 Mhz Accel. 318.

7 16 Mhz Accel.w/FPU 318.

Logiccode

7 Quicktel Fax Modems 148.

7 9624 Send/Receive 198.

7 9624 V.42bis Send/Receive 398.

7 9696 S/R V.42bis 498.

7 9600 V.32/V.42bis 498.

Micron

7 XCEED Color 30 279.

Microtek

7 ScanMaker 600GS 1098.

7 ScanMaker 600ZS 1398.

7 TrueLaser Printer 1398.

Monster Design

7 MacSpeaker 169.

Nuvotech

7 Turbo Net - Din-8 19.

RasterOps

7 Color Monitors 1288.

7 16" 1698.

7 19" Hitachi 1288.

7 24Mx 1288.

7 24Mx 1288.

7 24Sx 688.

7 24XL 2148.

7 PaintBoard 24 1698.

7 Monochrome/Grayscale Monitors 858.

7 19" Mono/Gray-Scale 858.

7 Video Boards-Monochrome 348.

7 ClearVue/XL 348.

7 Video & Multi Media 728.

7 Expresso Pers.Slide Scan. 668.

7 RasterOps 24STV 1698.

7 RasterOps MediaTime 1288.

7 RasterOps VideoTime 498.

7 Video Expand. (NTSC or PAL) 398.

Shiva

7 Ethergate 1289.

7 FastPath 5 1795.

7 NetBridge 398.

SIMMO

7 Single Inline Memory Modules 37.

7 SIMM 1-MB 80ns 88.

7 SIMM 2-MB 80ns 148.

7 SIMM 4-MB 80ns 158.

7 SIMM FX 4-MB 80ns 45.

7 SIMM FX/NTX 1-MB 80ns 45.

SuperMac

7 Monochrome Card 358.

7 PowerBook Display Expander 538.

7 SuperMatch Display Calib. 538.

24 Bit Display Cards

7 ColorCard/24 538.

7 Spectrum/24 1078.

7 Spectrum/8•24 PDQ 898.

7 Spectrum/8•24 PDQ si 898.

7 Spectrum/24 Series III 1528.

8 Bit Display Cards

7 Spectrum/8 LC 538.

7 Spectrum/8 Series III 538.

7 Spectrum/8 si 538.

Accelerators

7 ColorCard Accelerator 358.

7 Spectrum/24 Accelerator 448.

7 SuperMatch Color Monitors 1138.

7 17" Multimode Color 1898.

7 20" Color 2598.

7 20" Dual-Mode Trinitron 1044.

7 Platinum 19" 1138.

7 Platinum 21" Two-Page 1138.

Video Capture/Multimedia

7 Spigot & Sound NuBus 798.

7 Spigot & Sound Pro NuBus 1698.

7 SuperSqueeze 798.

7 VideoSpigot NuBus 538.

7 VideoSpigot LC 448.

7 VideoSpigot Pro NuBus 1438.

7 VideoSpigot Pro si 1348.

7 VideoSpigot si 448.

Supra Corp.

7 Supra FAXModem 198.

7 FaxModem Plus MacPac 328.

7 FaxModem V.32 378.

7 FaxModem V.32bis 109.

Thunderware

7 LightningScan Pro 256 489.

Wacom

7 12X12 Digitizers Cordless Stylus 836.

7 Electro Static 758.

7 Standard 518.

7 6 X 9 Digitizers Cordless Stylus 518.

7 Standard 518.

HARD DRIVES

CRU

7 Case Opener/Torx Kit 8.

7 Mounting Bracket (Ilii/Ilii) 15.

7 Mounting Bracket (SE/II) 19.

DataPlace

7 All DP+ Drives come w/Mac 318.

7 Tools Deluxe & More Disk 418.

7 Space! All DP Drives are tested 738.

7 and pre-formatted. 1328.

External Hard Drives

7 DP+ 52-MB Quantum 268.

7 DP+ 105-MB Quantum 368.

7 DP+ 240-MB Quantum 688.

7 DP+ 425-MB Quantum 1198.

Removable Syquest Hard Drives

7 DP+ 44-MB w/cartridge 488.

7 DP+ 88-MB w/cartridge 648.

FWB Software

7 PocketHammer 599.

7 50-MB 798.

7 100-MB 1198.

7 200-MB 1198.

Iomega

7 Bernoulli 788.

7 Transportable 90-MB 38.

7 Kit w/MacTools Deluxe 98.

7 Kit w/Retrospect 138.

7 Single 90-MB Cartridge 408.

7 Tri-Pack 90-MB 408.

Seagate Technology

7 Full Height Drive 2088.

7 WrenRunner II 676 MB 2088.

Syquest

7 44-MB Cartridges 68.

7 88-MB Cartridges 107.

MUSIC

Ars Nova

7 Practica Musica 2.3 66.

Opcode Systems

7 Book Of MIDI 28.

7 EZ Music Starter Kit 155.

7 EZVision 98.

7 Galaxy Universal Librarian 188.

"We have more products than we can list here!"

Call 1-800-367-4222 US & Canada • Visa/MC/AMEX accepted

ACCESSORIES

Advanced Gravis	
7 Mousestick	58.
Apple	
7 Toner/LaserWriter II	105.
Artistic Systems	
7 Voice Navigator II	548.
CoStar Corporation	
7 LabelWriter II 1" Head	185.
7 Shingray Trackball	79.
DataDesk	
7 Mac 101E (All Macs)	126.
Fellowes	
7 Diskette Holder	
Oak (Holds 45)	19.
Oak (Holds 120)	31.
Golden Ribbons31	
ImageWriter Ribbons - Black	4.
ImageWriter Multi Color	9.
InCom	
7 Compu-Case - PowerBook	78.
Kensington Microware	
7 7' Long ADB Keyboard Cable	24.
7 Turbo Mouse Adb	107.
Key Tronic	
7 Mac Pro Plus	143.
L B Innovators, Inc	
Table-Xtender	12.
WristSaver	
Red, Charcoal or Navy Blue	12.
WristSaver Mouse Pad	
Red, Charcoal or Navy Blue	12.
Mac's Place	
Mac's Place Speed Pad	7.
System 7 T-Shirt (M, L, XL)	12.
7 Outlet Noise/Surge	15.
Mac's Place Cable	
Macintosh Cables (Full Line)	Call.
Maxell	
7 60-MB BU Tape CS600HD	18.
7 150-MB BU Tape CS600XD	22.
Sony	
7 Double Sided 10 Pak	9.
7 Double Sided-Bulk 50 Pak	33.
7 High Density 10 Pak	15.
7 High Density-Bulk 50 Pak	60.
Sophisticated Circuits	
7 PowerKey 2.0 w/QuickKeys Lite	75.

BUSINESS

ACIUS	
7 4th Dimension V2.2	478.
AEC Management Systems	
7 FastTrack Schedule 1.5	135.
After Hours Software	
7 TouchBASE	79.
Aldus	
7 Persuasion	318.
Amaze! Inc	
7 The Far Side Calendar	45.
Ark Interface, Inc	
7 Workspace	79.
Asante	
7 PersonToPerson 2-User	98.
7 PersonToPerson 10-User	262.

7 PersonToPerson Zone Pack	458.
ASD Software	
7 Active Memory Single User	125.
7 Active Memory 5 User	314.
Attain Corp.	
7 In Control	94.
Bananafish Software	
7 ThoughtPattern	94.
Beagle Brothers Inc.	
7 BeagleWorks	184.
7 Competitive Upgrade	98.
Caere	
7 OmniPage w/Spell & Draft	478.
CE Software	
7 Calendarmaker 3.0	31.
7 Tiles	59.
QuickMail 2.5	
5 Users	239.
10 Users	365.
Ceres Software	
7 Inspiration 3.0	158.
CheckMark Software	
7 MultiLedge 2.0	225.
7 Payroll	169.
Chena Software	
7 Fair Witness 1.1	315.
Chip Soft	
7 MacIntax 1040 Personal 1991	59.
7 w/Quicken	88.
7 MacIntax Personal States ea.	42.
Claris	
7 Claris Works	Call.
7 FileMaker Pro	208.
7 HyperCard V2.1	139.
7 MacWrite II	98.
CompuServe	
7 CompuServe Membership Kit	21.
7 CompuServe Navigator	49.
DeltaPoint	
7 DeltaGraph Professional	192.
Fox Software	
7 FoxBASE+/Mac	289.
7 FoxBASE+/Mac MultiUser	389.
Freesoft Company	
7 White Knight V11	85.
Information Electronics	
7 QMConcierge	168.
IBSO	
7 Data Club Classic 3 Pak	179.
7 Data Club Classic 10 Pak	498.
Insigna Solutions	
Soft PC	
AccessPC	59.
SoftNode	105.
Entry Level V2.5	125.
Universal V2.5	194.
AT V2.5	298.
Intuit	
7 Quicken 3.0	39.
Lotus Development	
7 Lotus 1-2-3	288.
Micro Planning Intl.	
7 Micro Planner Manager	378.
Microsoft	
7 Excel 3.0	298.
7 Office V2.0	478.
7 Word 5.0	298.
7 Words	159.

New Era Software	
7 nuBASE Pro 1.5	248.
Nolo Press	
7 For The Record	30.
7 Will Maker 4.0	35.
Now Software	
7 Up to Date (Single User)	64.
Paragon Concepts	
7 Nisus 3.06	245.
7 Nisus Compact	98.
Pastel Development	
7 DayMaker	58.
Portfolio Systems	
7 DynoDex 2.0	69.
7 DynoPage 1.7	72.
Prescience	
7 Expressionist	77.
7 Theorist	245.
Reality Technology	
7 Wealth Builder	94.
SoftSync	
7 Accountant Inc.	338.
7 Accountant Inc. Multi-User	568.
Software Ventures	
7 MicroPhone II V4.0	208.
Spider Island Software	
7 TeleFinder Grp.- Unlimit.	272.
Symantec	
7 GreatWorks 2.0	198.
7 More	264.
T/Maker	
7 PowerBundle	158.
7 WriteNow 3.0	Call.
Teleware	
7 M.Y.O.B.	139.
Timeslips Corporation	
7 TimeSlips III V2.1	192.
Wolfarm Research Inc.	
7 Mathematica Std. 2.0	498.
7 Mathematica Enhanced 2.0	788.
Wyoming Software	
7 Business Sense 1.5	124.

GRAPHICS

Adobe	
7 Illustrator 3.2 w/ATM 2.0	368.
7 Photoshop 2.0	539.
7 Premier	308.
7 Streamline 2.0	117.
7 Type Manager	59.
Aldus	
7 Freehand 3.1	388.
7 Gallery Effects	128.
7 Pagemaker 4.2	489.
7 Personal Press	138.
7 SuperPaint 3.0	128.
Altsys	
7 Fontographer	262.
Ares Software	
7 FontMonger	59.
Baseline Publishing	
7 Color MacCheese	49.
Broderbund	
7 Print Shop	35.
7 TypeStyler 2.0	126.

Calliscope Software	
7 Satellite 3D	128.
Claris	
7 Claris CAD	598.
7 MacDraw Pro	278.
CoSA	
7 PACO Producer 2.0	158.
7 XPlayPACo XCMD	158.
7 PACO Producer Bundle	374.
D'Pix	
7 FOLIO 1	344.
Delta Tao Software	
7 Monet	198.
Deneba	
7 Canvas V3.0	248.
Fractal Design	
7 Painter 1.2	248.
Frame Technology	
7 FrameMaker	594.
MacroMind/Paracomp	
7 MacroMind Accelerator V3.0	128.
7 MacroMind Director	679.
7 Model Shop V2.0	578.
7 Magic	248.
7 Swivel 3D Professional	429.
MicroFrontier	
7 Color It!	75.
Motion Works	
7 ADDmotion	Call.
7 ProMotion	Call.
Pixar	
7 Showplace/MacRenderMan	629.
Postcraft International	
7 Effects Specialist	93.
7 Layouts	78.
Quark Incorporated	
7 XPress 3.1	548.
Ray Dream	
7 JAG	68.
7 Ray Dream Designer	589.
Specular International	
7 Infini-D	647.
7 Replicas Vol. 1 or 2	188.
Strata, Inc.	
7 StrataVision 3d 2.0	648.
Timeworks	
7 Publish It! Easy	138.
7 Competitive Upgrade	99.

CD-ROM

Optical Access	
7 CD/Allegro (310 ms)	648.
7 CD/6-Pack	1198.
7 RD/Aria	1598.
Cyan	
7 Cosmic Osmo CD	39.
Discovery Systems	
7 Berkeley BMUG PD ROM	65.
7 Nautilus BackPac (1 or 2)	44.
7 Nautilus Starter Disc	20.
7 Sherlock Holmes on Disc	19.
FM Waves	
7 DTPRO CD-ROM	75.
HyperGlot Software	
7 Learning To Speak French	59.
7 Learning To Speak Spanish	59.

ICOM Simulations	
7 Sher. Holmes Consult. Det.	39.
Pixar	
7 Showplace/MacRenderMan	448.
Quantum Leap	
7 CD-7 Super Library 2 Disk Set	72.
7 Giga-ROM 2.0 Super Library	98.
7 Macademic Education Library	73.

EDUCATIONAL

Broderbund	
7 Kid Pix V1.2	37.
7 Type!	18.
Davidson & Associates	
7 Algo-Blaster Plus	34.
7 Dinosaur Discovery Kit	27.
7 Math Blaster Plus	34.
7 SAT Personal Trainer	34.
HyperGlot Software	
7 Easy Kana (Japan.)	62.
Knowledge Revolution	
7 Interactive Physics	156.
Learning Company	
7 Math Rabbit	36.
7 OutNumbered!	36.
7 Reader Rabbit 1 V3.0	35.
7 The Writing Center	50.
MECCO	
7 Number Munchers	28.
7 Oregon Trail	28.
7 Word Munchers	28.
Nordic Software	
MacKids	
Pre-Schoolpack	35.
Word Search Deluxe	35.
Software Toolworks	
7 Mavis Beacon Typing	29.

ENTERTAINMENT

Accolade	
Hardball II	31.
7 Ishido: The Way of Stones	32.
Baseline Publishing	
7 Talking Moose	22.
Broderbund	
7 Carmen San Diego?	
Europe, Time, USA World	ea. 29.
7 Nigel's World	36.
7 Playmaker Football	29.
7 SimAnt	35.
7 SimCity	29.
7 SimCity Supreme	47.
7 SimEarth	40.
7 Spelunx	29.
7 The Playroom V2.0	29.
Casady & Greene	
7 Glider	29.
Deadly Games	
7 Battle of Britain II	31.
7 Bomber (w/Headphones)	31.
Delta Tao Software	
7 Spaceward Ho! 2.0	35.
7 Strategic Conquest 3.0	35.
Electronic Arts	
7 PGA Tour Golf	35.
7 PGA Tour Golf: Tourn. Course	16.

ORDER INFO

Mac's Policies

- Visa, Mastercard, American Express, and OPTIMA gladly accepted.
- Your credit card is never charged until your products ship.
- Partial orders: remaining freight paid by you (U.S. only).
- Most items carry the manufacturer's 30 or 60 day Money Back Guarantee (MBG). Mac's Place has a 30 day MBG on most hardware (USA only). We maintain the right to limit quantities on MBG returns. Ask for details when ordering.
- 120 day limited warranty on all products; some hardware items carry one and two year warranties. Defective software is replaced immediately with like item(s). Defective hardware items repaired or replaced at our discretion. Loan drives subject to availability (USA only).
- Most personal and company checks approved upon receipt to insure immediate shipment. For non-standard checks and checks over

- \$1,000, allow ten working days for clearance.
 - No sales tax (except WA residents add 8.2% to total, including shipping).
 - All returns must have an authorization number. Please call 800-367-4222.
 - All prices & promotions subject to change without notice. All items subject to availability. Not responsible for typographic errors.
- Orders USA:** Orders placed weekdays by 7:30 pm E.S.T., 4:30 pm P.S.T. for "in stock" items ship same day (barring system failure, etc.) for overnight delivery via Airborne Express. Our \$3.00 shipping charge includes insurance at no extra charge. Rural locations may require an additional day for delivery. Areas not serviced by Airborne (Airborne does not deliver to P.O. Boxes) will be sent via U.S. Postal Service or UPS Second Day. Alaska & Hawaii orders ship UPS 2nd day air. Alaska customers outside metropolitan areas pay full shipping charges, ask for rates.

- **Purchase Orders:** Government, School, and Institutional P.O.'s clear immediately. Corporate P.O.'s subject to credit approval. Full shipping charges apply, prepaid and added.
 - **International Orders:** Call 206-883-8312. We ship throughout the free world via Airborne Express International. INTERNATIONAL ORDERS ARE CHARGED FULL SHIPPING CHARGES. Contact Mac's Place for information. Mail, FAX or electronic orders gladly accepted.
 - **Electronic Mail Orders:** CompuServe (76635.680), GENIE (MACSPAC), America Online (Mac'sPlace). Mac's Place uses CE Software's QuickMail™ to check our mail regularly.
- Phone:** 800-367-4222, 206-883-8312, FAX 206-881-3090
© 1992 Mac's Place, Inc.
- Like all aspects of Mac's Place's operation, this ad was entirely designed and assembled using Macintosh technology.
No paste-up. No stripping.
Mac's Place: 8461 154th Ave. NE, Redmond, WA 98052*

Mac's Place

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090
 7 System 7 Compatible 7 30-60 Day Money Back Guarantee

"Ask a Mac Wizard"

... per order, not per item."

SuperDisk!/More Disk Space

Alysis 700 From the makers of SuperDisk!, a simple utility that will double your hard disk capacity. Throw out those awkward archivers and compression programs and double click on More Disk Space! Instant access to compressed files, zero decompression time! You won't even know it's there!

\$49^{ea}

See listings under Hard Drives

Hard Drives

DataPlace 700 Available only at Mac's Place, these quality Quantum hard drives and Syquest Removable Cartridge drives come with DataWare formatting software, Alysis Software's More Disk Space and Central Points MacTools Deluxe. Each drive features a selectable SCSI ID switch, two 50 pin SCSI connectors, an external fuse and two AC Plug-ins.

QMConcierge

Information Electronics 7 An indispensable tool for QuickMail networks. Forwards your mail to one person or a group of people while you're away! Generates notices automatically. Create net work groups. Licensed per QuickMail Server.

\$168

QuickSilver IIsi w/FPU

Applied Engineering 700 32k static RAM cache board w/68882-20Mhz FPU for the Mac IIsi. Provides a dramatic performance increase over the standard IIsi. Comes standard with an SE/30 slot extender, which allows SE/30 cards to be used in the IIsi.

\$308

PersonToPerson (2-user)

Asanté 700 Mac communication software system that mirrors "traditional" office interactions. Instead of shouting across the workplace, PersonToPerson allows users to send voice messages across the network. Includes an In/Out Board and a Post-It™ Note Window. No file server or net-admin. required!

\$98

Access RD/Aria™

Optical Access Intl. 700 128 megabytes in your shirt pocket. This 3.5" optical drive is the cutting edge of technology, enhanced with SuperCache software for lightning fast operation. The ultimate data security and affordability. Includes: cable, and removable 3.5" media cartridge (ANSI compatible).

\$1598

Access CD Allegro

Optical Access Intl. 700 The fastest CD-ROM drive available with a 310 ms. access time. Includes SuperCache® software for lightning speed access to large amounts of information. Features headphone jack, stereo RCA type audio connectors, and deluxe desk accessory. Includes cable, sample CD, and one caddy.

\$648

VideoSpigot

SuperMac 700 New! Make QuickTime movies on your Mac LC on up to the Quadra 900. Grab video from your VCR, camcorder or TV and pour it right onto your hard drive or optical cartridge. Import as high-image-quality digital data right into QuickTime applications and treat them just like text or graphics. Call for pricing and information today!

See listings under Hardware

Use it tomorrow."

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

7 System 7 Compatible 7 System 7 Savvy 0 30-60 Day Money Back Guarantee

Mac's Place

Call 1-800-367-4222 US & Canada • Visa/MC/AMEX accepted

"Mac's Place overnight shipping is just \$3..."

Call 1-800-367-4222 US & Canada • Visa/MC/AMEX accepted



\$79

Stingray Trackball

CoStar 70 Replace your mouse or trackball with the new Stingray Trackball. It's sleek, low profile design keeps your wrist at a comfortable angle. Extra buttons and a small ball make the Stingray easy to use regardless of hand size. Includes special software and a lifetime warranty. Limited time offer from Mac's Place.

SIMMs

Mac's Place 70 Expand the mind of your Mac! One Meg SIMM, 80 nanoseconds, only \$37! Four Meg SIMM only \$148! Includes the most complete installation manual available. Get your Mac ready for System 7. See Listings for Ifx prices.



\$37^{ea}



\$378

SupraFAXModem V.32bis

Supra Corp. 70 Fax and data communications have never been easier... or faster! This modem's 14,400bps transmission rate means unprecedented savings in time and phone charges. Fax direct from your Mac as effortlessly as you print, and get started right away: the complete package includes FAXstf and MicroPhone 1.6 software.



\$78

The Miracle Piano Teaching System

Software Toolworks 7 The first keyboard that teaches you how to play it! Makes learning even the basics a pleasure. Professional keyboard with 49 standard-sized velocity-sensitive keys, 128 digitized instruments and sounds, with full MIDI-compatibility. Includes hundreds of songs and lessons, and full orchestral accompaniment.



Call

Compu-Case for the PowerBook

InCom Specifically designed to fit the Macintosh PowerBooks. Features two zippered outside pockets for important documents and files and an inner pocket to hold your PowerBook and accessories. Plus executive style pouches to accommodate diskettes, pens, business cards, etc.



\$94

In Control

Attain Corporation 70 Are projects getting out of hand? Stay in control with this indispensable application that organizes, categorizes and prioritizes your "to do" list. You get the flexibility of an outline with the power of a row-and-column format.

SNOOPER

MAXA Corp. 7 Find problems fast with Snooper, the revolutionary suite of hardware diagnostic and testing tools. Snooper is easy-to-use, powerful and saves you time. No set of Mac utilities is complete without Snooper, the hardware diagnostic.



See listings under Utilities

NightWatch II

Kent Marsh Ltd. 70 Provides ironclad hard disk protection while you're away and hot spot screen security while you work. Allows you to set user time-of-day or day-of-week restrictions, write protection and much, much more. Masterkey capability.



\$89

Mac's Place

Call 1-800-367-4222 or Fax your P.O. 1-206-881-3090

7 System 7 Compatible 7 System 7 Savvy 7 30-60 Day Money Back Guarantee

"Call today."

"Your order will ship to you overnight for just \$3"



\$39

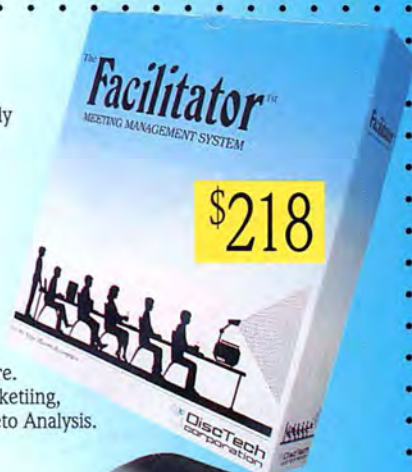
HELLCATS

Graphic Simulations 7 The most realistic flight simulator ever! Incredibly fast and fluid graphics. 256 colors and high quality sounds transform you into a battle-hardened naval aviator commanding potent firepower. Rule the skies over pacific islands in a half-million square mile world.



Facilitator

DiscTech Corp. 7 Instant meeting efficiency and effectiveness. All aspects of meeting management are provided: Logistics, Purpose, Desired Outcomes, Attendees, Electronic Agenda w/ Timekeeping, Action Items, Notes and more. Problem solving tools include Brainstorming, Bucketing, Fishboning and Pareto Analysis.



\$218



\$647

Infini-D

Specular International 7 Integrated 3D modeling, rendering, and animation with an interface so easy you'll create stunning photo-realistic graphics within hours. Includes 250 surface libraries, full tutorial, animation viewer. Free 1.1 upgrade supports System 7, 3D TrueType fonts.

Xeba-Fax Modem

Logicode Quicktel 7 Fulfill your Mac's communication potential in style with this hot, new, quality built fax/modem. Send and receive faxes at 9600 bps. 2400 baud modem gives throughput up to 9600 with V.42bis data compression. Totally state-of-the-art!



\$198



\$728



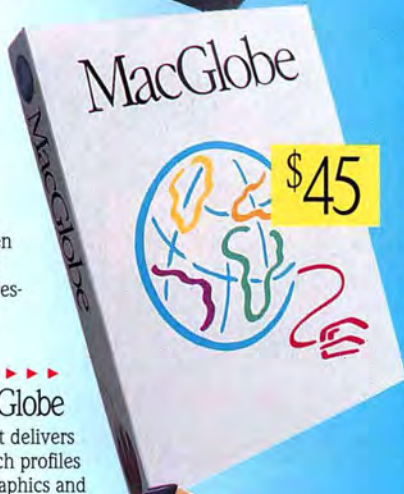
Painter 1.2 / 6 x 9 Tablet

Fractal/Wacom 7 Painter, the natural media painting program chosen by critics: MacUser Eddy 1991, 5 Mice, MacWeek's Target Award. The Wacom tablet has the premier pressure sensitive stylus. Now specially priced together.



MacGlobe

PC Globe 7 New state-of-the-art electronic atlas program that delivers instant profiles of 190 countries. Ask about the new MacUSA which profiles all 50 states and Puerto Rico. Both programs packed with maps, graphics and annually updated.



\$45



Omnis Seven

Blyth Software 7 Create industrial strength client/server applications that run indistinguishably on both Macs and PCs. Mac's Place agrees, there simply isn't a better tool available. "We use Omnis in every phase of our operation. It never let's us down and we've programmed with it since 1986." Call 1-800-34-OMNIS for more information.



Cinamation

Vividus 7 Easily create interactive presentations with professional-quality animation, sound, and QuickTime video. Also animates PowerPoint and Persuasion presentations. Includes painting tools, the CinePlayer, a HC-XCMD to control movies, and 12-MB of animation, templates, and sound.



\$388

Call 1-800-367-4222 US & Canada • Visa/MC/AMEX accepted

"Fax us your PO to 206-881-3090."

MagicVIEW

Complete video solutions available from 15" Monochrome Systems to our full-blown 20" 24-bit Trinitron System with block-mode transfer for faster screen redraw!

MagicVIEW 19" & 15" Monitor Special!

Single or Double Page Displays with 1152 x 870 Resolution!

15" Panasonic Monochrome w/ Card	\$399.....	\$12
19" Panasonic Monochrome w/ Card	\$499.....	\$15
19" Panasonic GreyScale w/ Card	\$799.....	\$24

MagicVIEW Monitors

MagicVIEW 20" Sony Trinitron.....	\$1999.....	\$60
MagicVIEW 20" Color Monitor.....	\$1350.....	\$40
MagicVIEW VideoCards		
MagicVIEW 20" 24-bit NuBus Video Card	\$999.....	\$30
MagicVIEW 20" 8-bit NuBus Video Card.....	\$499.....	\$15

RasterOps 8XLI/24XLI Upgrade Kit!

RasterOps 8XLI Upgrade to a full working 24XLI.		
Magic RasterOps 8XLI to 24XLI Upgrade	\$599.....	\$18
RasterOps 24XLI (Upgraded).....	\$1699.....	\$51

Software

Adobe Illustrator 3.2.....	\$385.....	\$12
Adobe Premier -QuickTime Video	\$345.....	\$10
Aldus Gallery Effects.....	\$139.....	\$4
FileMaker Pro.....	\$199.....	\$6
InfiniD.....	\$669.....	\$20
Microsoft Word 5.0	\$299.....	\$9
Quark XPress 3.1.....	\$549.....	\$3
System 7	\$80.....	\$2

Macintosh Call for Pricing!

MacProducts USA offers **Complete System Solutions** to suit your specific computing needs. MacProducts also offers the option to buy or lease your system. Macintosh Classic, Classic II, Macintosh PowerBook 100, 140, 170, Macintosh LC, IIsi, IIfx, Quadra 700, Quadra 900.

Scanners

Sharp JX 320	\$1499.....	\$45
Sharp Transparency Unit.....	\$895.....	\$27
Microtek 600ZS 24-bit 600DPI Scanner	\$1329.....	\$40
Microtek 1850S 24-bit Slide Scanner	\$1699.....	\$49
UMAX 630 24-bit 600DPI Scanner.....	\$1299.....	\$39

Printers

All Models Available. Call for Pricing!

GCC, NEC, QMS, Qume, Texas Instruments, and More!

NEW PRICE QMS PS-410 Laser Printer.....	\$1599.....	\$49
TI microLaser PS/17 & PS/35.....	\$1299/\$1599.....	\$39
TI microLaser Turbo XL.....	\$3299.....	\$99



RasterOps

radius

SUPERMAC

& More!

Limited
Quantity
available.



MagicModems

Magic Modems are available in speeds from the economical 2400 baud modem to the blazing fast 9600 Ultra Modem with error correction capabilities built-in!

Magic Modems

Magic 9600 Ultra -100% compatible with the Hayes Ultra V.32 bis/ V.42 bis MNP 5 Error Correction.....	\$349.....	\$10
Magic 9600 Baud V.32 Turbo/42bis Modem.....	\$299.....	\$9
Magic 2400 V.42 bis MNP-5 Modem	\$149.....	\$5
Magic 2400 Baud Modem with software	\$69.....	\$3



MagicFaxModems

Magic Modems are available from the reliable Magic SendFax to the fast and fully automated 9600 V.32 FaxModem with error correction built-in.

MagicFax Modems

Magic 24/96 SendFax Modem	\$89.....	\$3
Magic 24/96 Send & Receive FaxModem	\$139.....	\$4
Magic 9600 Baud V.32bis /42bis Fax Modem.....	\$399.....	\$12



MagicMemory

MacProducts USA carries a complete line of System and Printer Upgrades.



Macintosh RAM

1MB SIMMs	Starting at \$29.....	\$1
2MB SIMMs.....	\$79.....	\$3
4MB SIMMs.....	\$149.....	\$4
16MB SIMMs.....	\$649.....	\$19
2/4MB PowerBook RAM.....	\$199/\$349.....	\$6
6MB PowerBook RAM.....	\$499.....	\$15
4MB Classic Upgrade.....	\$99.....	\$3
LC VRAM.....	\$69.....	\$3
Quadra VRAM.....	\$49.....	\$2

Printer RAM

GCC PLP II/S 1MB	\$49.....	\$2
LZR 960 8MB Upgrade.....	\$499.....	\$15
NEC Silentwriter 2 Model 90 2MB Upgrade.....	\$249.....	\$7
QMS PS-410 4MB Upgrade.....	\$299.....	\$8
QMS PS-815 4MB Upgrade.....	\$349.....	\$8
TI 1MB RAM Upgrade	\$59.....	\$3

MagicNET

Magic networking solutions available for any network situation!



Magic Ether NET -Thin/Thick/10baseT	\$199.....	\$6
Magic NET (localtalk node).....	\$18.....	\$1
Magic NET (localtalk node) 12 Pak.....	\$16.....	\$1
Magic NET (localtalk node) 48 Pak.....	\$14.....	\$1

1-800-MAC-DISK MacProducts USA

Fax 512-499-0888
Tel 512-472-8881
Singapore 65-287-5181
Canada 800-624-9307

Customer Service
(512) 472-8881 ext 631
Technical Support
(512) 472-8881 ext 628

Hours M-F 8am-9pm
Sat 9am-6pm
608 West 22nd, Austin, TX 78705
Returns: Returns require an RMA#.

Returns subject to a restocking fee.
Call (512) 472-8881 Ext 625.
Opened software NOT returnable.
Prices subject to change & availability.



PREMIER

CLASSIFIED

BUSINESS CARD

The four-color showcase that spotlights leading-edge products and services.

305-311

312-325

326-327

HARDWARE

HARDWARE			
Accelerator Boards	305	312	
Bar Code		312	
CD-Rom			
Communications	305		
Computer Systems	305	312	326
Data Acquisition			
Data Recovery Services	305	315	326
Disk Drives	306	315	
Diskettes			
General		316	
Input Devices			
Insurance		316	326
Memory Upgrades		316	
Networking			
Peripherals		319	
Printers		321	326
Scanners		321	
Security			
Used Equipment			

SOFTWARE			
Accounting	307	321	326
Bar Code	307	321	
Business	308	321	326
Business Time Management			
CAD/CAM	308		
CD-Rom	308	322	
Desktop Publishing			
Educational		323	326
Emulation			
Engineering		323	
Entertainment/Games		323	326
Financial			
Fonts		323	
Foreign Languages	309	323	326
Genealogy		323	
General			
Government			326
Graphics		324	
Health			327
Language Tools		324	
Legal	309		327
Lottery			
Medical/Dental			327
Music/MIDI	309		
Networking	309		
Personal Management			327
Programming Tools	309		
Public Domain		324	
Real Estate			
Recreation	309		327

Religion			
Sales Marketing			
Scientific		324	
Security			
Shareware		324	
Stackware			
Statistics			
Taxes			
Utilities	310		327
Word Processing			
MISCELLANEOUS			
Accessories	310	324	
Books/Catalogues			
Business Opportunities			
Data Conversion Services		324	
Desktop Publishing Services		325	
Diskette Copy Services		325	
Furniture			
Insurance			
Novelties			
Services			
Slide Imaging Services	311	325	
Supplies	311	325	

One Park Avenue, New York, NY 10016
(212) 503-5115 or (800) 825-4ADS

Sherrie M. Graddic (212) 503-5152
Business Card Representative

Thomas P. Koletas (212) 503-5136
CT, DC, DE, FL, GA, MA, MD, ME, NC, NH, NJ, NY, PA, RI, SC, VA, VT, WV

Dennis M. Leavey (212) 503-5111
AK, CA (209, 408, 415, 510 707, 800, 805, 916), HI, ID, MN, MT, ND, NV, OR, SD, WA, WY

Laura A. Salerno (212) 503-5140
AZ, CA (213, 310, 619, 714, 818), CO, NM, UT

(212) 503-5138
AL, AR, A, IL, IN, KS, KY, LA, MI, MO, MS, NE, OH, OK, TN, TX, WI, CANADA, OVERSEAS

Paul Stafford
Vice President, Classified Advertising

Anne R. Brockinton
Production Director

Chris Meyer
Production Coordinator

Vickie Pinsky
Classified Advertising Director

Paul A. Fusco
Sales Manager

Nepreil Foster
Advertising Coordinator



More Than Just An Accelerator.

The Aztech Merida upgrade kit for the Macintosh Plus and SE enables you to upgrade to a modular system with large screen display and accelerator for just \$1,345.

Broken Macintosh? We can repair and upgrade it for a very affordable price. Don't have a Mac to upgrade? Our kits can be configured with or w/o Mac motherboards.

Call for information about our Empean Tower Enclosure and slot expanders for the Macintosh LC and II series computers.

Aztech Micro Solutions, Inc.
130 McCormick #103, Costa Mesa, CA 92626
(800) 524-3500



CIRCLE 250 ON READER SERVICE CARD

Install Your Large Hard Drive with a Click of Your Mouse.



Installation of virtually any SCSI drive is easy and only minutes away with Ontrack's **Disk Manager Mac** hard disk installation utility for Macintosh.

- Create customized partitions.
- Complete with utilities to manage and secure your data.
- Available with or without a hardware installation kit.

Completely System 7 Compatible

1-800-752-1333

International: 612-937-1107 • Fax: 612-937-5815
6321 Bury Drive, Eden Prairie, MN 55346

Ontrack
DATA RECOVERY

PREMIER

Fax Modem

9624 PF

For All Mac Computers

Turns your computer into a Fax machine instantly!

- 9600 bps SEND/RECEIVE
- GROUP 3 FAX
- 2400 bps DATA MODEM
- HAYES COMPATIBLE
- 5 YEAR WARRANTY
- MADE IN THE USA

NOW \$169.00

~~\$399.00~~

CABLE &
SOFTWARE
INCLUDED

Dealer & Dist.
Inquiries Welcome

NET
MICRO ELECTRONIC TECHNOLOGIES, INC.

TEL: 1-800-766-7466
FAX: 508-435-6481

CIRCLE 251 ON READER SERVICE CARD

For That Critical Moment When Only the Best Will Do



Call Ontrack Data Recovery

- **FAST** Turn Around.
- **95% SUCCESS** Rate.
- **PROFESSIONAL** Clean Room.
- **EXPERTISE** in Macintosh, SyQuest, and removable media plus Novell, DOS, OS/2, Unix, Xenix, Bernoulli, Sun Banyan Vines and more!

1-800-872-2599

International: 612-937-5161 • Fax: 612-937-5750
6321 Bury Drive, Eden Prairie, MN 55346

Ontrack
DATA RECOVERY

TMS Peripherals
SERVICE • SUPPORT • SATISFACTION

Shadow



"This is one case where less is more!"

Model	Capacity	Price
Shadow 52 LPS	11ms	\$319
Shadow 105 LPS	11ms	449
Shadow 120 LPS	10ms	529
Shadow 240 LPS	10ms	829
Shadow 425	10ms	1399
Shadow 1000	10ms	Call

TMS PRO SERIES DRIVES
2 Year Full Warranty
Authorized Quantum Dealer Int. Ext.

Model	Capacity	Price
Pro 52 LPS	11ms	\$239 \$319
Pro 105 LPS	11ms	369 449
Pro 120 LPS	10ms	449 529
Pro 240 LPS	10ms	749 829
Pro 425	10ms	1319 1399
Pro 1000	10ms	Call Call

TMS REMOVABLE SUBSYSTEMS
SyQuest 2 Year Full Warranty

Model	Price
TMS Pro R45 20ms	\$459
TMS Pro R90 20ms	\$659

includes 1 cartridge
Cartridges \$67.95 & \$119.95

TMS TAPE BACKUP SYSTEMS
Each tape backup system carries TMS' 1 Year Full Warranty

TMS Pro T155 & 1 tape \$499 • extra tapes \$20.95
RETROSPECT by Dantz—\$100 w/ the purchase of tape drive

PRO SERIES FEATURES: International Auto-Switching Power Supply • Selectable Pushbutton SCSI ID Switch • Thermostatically Controlled Fan • VCA Mechanism • DiskWriter™, TMS' Universal Formatting Software • 27+ Mbs Shareware • 2 SCSI Ports • 2 AC Jacks • Shielded Power Supply • ALL Hardware & Manuals • TOLL-FREE TECHNICAL SUPPORT
30 Day Money Back Performance Guarantee

800 ASK 4TMS
1120 Holland Drive, Suite 16 • Boca Raton FL 33487 • 407.998.9958 • Fax: 407.998.9983

CIRCLE 254 ON READER SERVICE CARD

TMS Peripherals
SERVICE • SUPPORT • SATISFACTION

SUPERMAC

*Super video upgrades at TMS' Super low prices!

VideoSpigot™ Digital Video System, Now ONLY \$429.95
LC, si • The only way to get full-motion video on your Macintosh!

VideoSpigot™ NuBus, Now ONLY \$515.95

19" Platinum Display, \$949.95

Supermatch 20 Color Display, \$1725.95

ColorCard / 24™, \$515.95 • Monochrome Card™, \$344.95

SuperMatch Display Calibrator, \$515.95

Spectrum / 8™ si, 8 LC or 8 Series III, \$515.95

Spectrum / 8-24™ PDQ or 8-24™ PDQ si, \$859.95

Spectrum / 24™ Series III, \$1465.95

AE QuickSilver \$219.95 • w/ 68882-20MHz FPU \$279.95

AE PlusDrive, \$289.95 Mac Plus/SE compatible High-Density Disk Drive

30 Day Money Back Performance Guarantee

800 ASK 4TMS
1120 Holland Drive, Suite 16 • Boca Raton FL 33487 • 407.998.9958 • Fax: 407.998.9983

CIRCLE 256 ON READER SERVICE CARD

TMS Peripherals
SERVICE • SUPPORT • SATISFACTION

DAYSTAR

DIGITAL

TURBOCHARGE your Macintosh with DayStar 100% compatible accelerators! **3 Year Warranty!**



33 Mhz PowerCache \$609.95, w/ FPU \$809.95

40 Mhz PowerCache \$809.95 • w/ FPU \$999.95

50 Mhz PowerCache \$1229.95 • w/ FPU \$1499.95

FastCache IICI \$239.95 or IISI \$269.95, w/ FPU \$333.95

All PowerCache Adapter Boards, \$30.95 • The IICI requires no Adapter Board.

The Classic Performer™
by Harris Laboratories, Inc.

Get Classic II performance for only \$295.95!
This is the accelerator that will make your standard Macintosh Classic **95% FASTER!** All math calculations are accelerated up to 70%. Accelerates SCSI Port by 30%. Easy One Step Installation! **LIFETIME WARRANTY!**



SIMMs 1Mb 80ns \$36.95 • 2Mb 80ns \$79.95 • 4Mb 80ns \$133.95

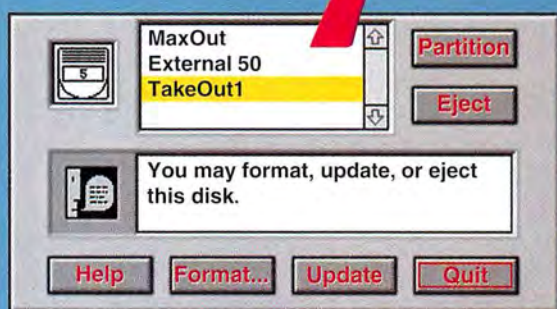
30 Day Money Back Performance Guarantee

800 ASK 4TMS
1120 Holland Drive, Suite 16 • Boca Raton FL 33487 • 407.998.9958 • Fax: 407.998.9983

CIRCLE 255 ON READER SERVICE CARD

THE AFFORDABLE WAY TO STANDARDIZE YOUR SYSTEM

Drive7



- ▶ Replaces Multiple Formatters
- ▶ Choice of Icons with Optional SCSI ID
- ▶ Updates Apple & Third Party Drives
- ▶ Virtual Memory on Syquest Drives

Casa Blanca Works, Inc. 415.461.2227 • FAX 415.461.2249
148 Bon Air Center • Greenbrae, CA 94904

CIRCLE 257 ON READER SERVICE CARD

Extra Storage at an Extra Low Price!

QuickKor 40

- Genuine Apple Mechanism
- 40 MB Low Power Mechanism, 1/3 Height
- HD Set Up and Backup Software
- Zero Footprint
- Cables

WOW!
new low
price

JUST \$248
Complete!

Running out of space on your hard disk? The QuickKor 40 gives you Apple quality for less than a no name clone. Call toll free today... The QuickKor The Better!

QuickKor 40

QuickFax: (503) 286-8710



800 338-9951

CIRCLE 258 ON READER SERVICE CARD

THE REAL BOTTOM LINE!

Hard Drives from only \$99.

This month's specials:

POWER-TECH Ext. 170MB Hard Drive 15ms	\$ 469
POWER-TECH Ext. 210MB Hard Drive 15ms	\$ 549
POWER-TECH Ext. 320MB Hard Drive 15ms	\$ 899
POWER-TECH RO-128 Mb. (Read/Write Optical)	\$ 1489
Cartridges \$49. each with purchase (Limit 4)	
POWER-TECH Ext. 21MB Floptical Drive	\$ 599

Reads & Writes New 21 mb. Floppies-plus 1.44 Mb-Mac or IBM Disks & 720k DOS Disks.

All External Drives come Preformatted in Deluxe zero footprint metal cases with 2 SCSI Ports, 2 AC outlets*, thermostatically controlled fan, push button SCSI ID selector, AutoSwitching Int'l Power Supply. *Except Full Height Drives

Hard Disk Drives of all sizes available!
CALL FOR LOWEST PRICE!!

VISA/MC **POWER-TECH DRIVES** Fed-Ex.

AT
WHOLESALE PRICES


CALL V.I.P DRIVES TOLL FREE
800-741-3668

DELRAY BEACH, FL. 407-243-3668 FAX 407-265-2977

All items subject to availability, prices subject to change without notice.

CIRCLE 259 ON READER SERVICE CARD

TAKE IT FROM THE EXPERTS

"ProfitAbility Professional -  is an ideal choice for small businesses... a solid investment."

MACUSER - JANUARY 1992

PROFITABILITY[®] Professional

SMALL BUSINESS ACCOUNTING FOR THE MAC

SUGGESTED RETAIL 249.00

FREE DEMO!

WETZEL & COMPANY, INC.

1 800 635 7849

CIRCLE 260 ON READER SERVICE CARD

Bar Code Fonts



"...the people at Bear Rock are flat-out experts on the topic of bar codes and produce products of exceptionally high quality."
— Personal Publishing Magazine 6/91

- Code 39 • UPC/EAN • ISBN • Int 2 of 5 • POSTNET
- Compatible with almost any application
- Bar code readers starting at \$395

Sales **1-800-BEAROCK**

(918) 622-4840

FAX

(918) 622-4775

Bear Rock
TECHNOLOGIES

6069 Enterprise Drive • Diamond Springs, CA 95619

PrintBar Version 3 Bar Code Fonts

"This is the best product of its kind, and it's priced to sell."
MacUser 6/91

'MacBARCODA' for Bar Codes that don't fail 'LABEL DESIGNER' The ultimate in label printing

Two great time and cost savers. Both technically outstanding and easy to use

MacBARCODA

- Eliminates film masters
- More precise adjustment than fonts.
- Easier to use than fonts.
- Producing bar codes in EPSF.
- Supports UPC, Code 39, ITF, ISSN, ISBN and EAN.
- Compatible with popular page design packages.
- Also available with color.
- A suite of D.A.'s.

Prices from \$349.



LABEL DESIGNER

- Used daily to produce all types of labels on a PostScript® printer.
- For \$245 look what you get
- Total flexibility - any label size or sheet layout.
- Text, lines, PICT & EPSF graphics and bar codes.
- Incrementing bar codes and numbers.
- Imports data easily from your word processor or database via ASCII text files.
- Code 39 and Postnet included. Also with Code 128, UPC, ITF, ISBN & EAN options.
- Ideal for mailing labels, BRC's, product/carton labels, asset/file tracking labels.



ComputaLabel

28 Green Street, Newbury, MA 01951
Tel 800-289-0993 Fax 508-462-9198

CIRCLE 262 ON READER SERVICE CARD

PREMIER

PLANMaker™ Powerful Business Plan Software

- Self-contained Business Plan software for the Mac
- Expert Narrative describes your business at its best
- Sophisticated Financial Forecasts build credibility
- Create your Business Plan and/or earn excellent profits creating Business Plans for other entrepreneurs as a Business Plan Consultant

MAC System 6.0.5 or later,
2 MBs RAM, w/Hard Drive,
VISA/MASTERCARD/AmEx
Include number, exp. date & sig



Call/write for Brochure
or order 1-800 955 3337



Self supporting, requires no
other software
\$129 + \$3 s/h (U.S.)
via AIRBORNE + \$6.25 s/h (U.S.)

PLANMaker
1920 S Broadway Dept 6
St. Louis, MO 63104
VISA/MasterCard/AmEx
Orders: 1 800 955 3337
FAX 1-314 421 0668
Worldwide: 314 421 0670

CIRCLE 263 ON READER SERVICE CARD

Frazzzzzled by HR Record Keeping?

Abra 2000 for Employees

- For 10 to 10,000 employees
- Top selling HR system, Mac & PC
- Over 100 Reports + Report Writer
- Starting at \$595 for upto 75 empl.

AbraTrak for Applicants

- Find the right candidate - Fast
- Auto letter generator
- 80+ reports, incl. EEO & Costs
- From \$995 for Single User

Real Working Demo and Manual \$25 / product

CALL 408-737-9454



CIRCLE 264 ON READER SERVICE CARD

Do your Electronic Design on a Macintosh Computer!

Douglas CAD/CAM is a family of products for the design and manufacturing of printed circuit boards. Running on the Apple Macintosh, the entire line is quick and easy to learn. The software together with the high resolution and speed of the Macintosh provides a quality engineering work station that is very affordable and easy to use.

DesignWorks is used for schematic entry, extracting net-list and parts list data, creating and editing custom parts and display of digital circuit simulation. DesignWorks may be used on its own or with Professional Layout and AutoRouter for full integration of the Professional System.

Professional Layout, the board layout and editing package, includes parts placement for components positioning. The program may be used on its own, or with DesignWorks and AutoRouter for full integration of the Professional System.

AutoRouter, used with DesignWorks and Professional Layout, allows full use of the Professional System by automatically completing circuit connections. The net-list from DesignWorks, and the parts placement from Professional Layout provide the necessary information for routing.

The Professional System consists of three programs: DesignWorks (schematic capture), Professional Layout, and AutoRouter. The system takes full advantage of the Macintosh in addition to multilayer and SMT capabilities. A fully integrated, powerful engineering tool, the Professional System will take you from the initial schematic to the final routed circuit board.



Output from the Professional system can be sent directly to dot-matrix and LaserWriter printers and all popular pen plotters. Software is also available for generating Gerber files for photoplotting and Excellon files for drilling.

Board Manufacturing and photoplotting are also available. If you wish to use the services that Douglas

Electronics provides, you may simply connect a modem to your Macintosh to get firm price quotes for boards then transmit your files for board manufacturing or photoplotting.

DOUGLAS ELECTRONICS INC.
2777 Alvarado St. • San Leandro, CA 94577
(510) 483-8770 FAX (510) 483-6453

Macintosh, Scimitar and Gopher are trademarks of Apple Computer, Inc. Scimitar, Animation, and Gopher Systems, Corp. respectively.

CIRCLE 265 ON READER SERVICE CARD

Blueprint: Professional CAD



Under \$300

If you're struggling to make technical drawings with programs made for graphic illustrators, you need the right tool! J.N. Worsham of Florida used Blueprint to design this fire engine.

Blueprint provides unprecedented control over scale, measurement, angles and joins. Create Bezier or cubic splines. New tools include ordinate and radial dimensioning. Work with an unlimited number of layers, and snap precisely to any point using Graphsoft's Smartcursor™.



Now you can have professional CAD no matter what Mac you own. Blueprint Supports the Mac Classic and new 64 dpi monitors. Converting files? Blueprint comes with a built-in DXF translator.

Call today and ask for the Blueprint Special: free overnight UPS delivery and a Smart Mouse t-shirt for only \$295. Thirty-day no-hassle money-back guarantee. Graphsoft: for five years we've been the leader in Mac CAD.

8370 Court Ave., Suite 101 • Ellicott City, MD 21043
(410) 461-9488 • FAX (410) 461-9345

CIRCLE 266 ON READER SERVICE CARD

High Yield CDs.



Quantum Leap delivers great value.

Name your flavor. These discs are large libraries of great Macintosh shareware and public domain programs. Everything from artworks and music to utilities, games, fonts, ...the works. Plus the latest System 7 software for the newest Macintosh computers, and plenty of new System 7 compatible shareware and PD programs.

- Giga-ROM™** 1.7 gigabytes of archived shareware and PD programs.
- CD7™** Two discs with over a billion bytes of programs and resources.
- Macademic™** The All-Educational Library for students and teachers.
- Mega-ROM™** The original, most-affordable Mac shareware CD.

Quantum Leap
TECHNOLOGIES
Setting new standards in CD Software

Call toll free 1-800-762-2877 for the dealer nearest you.
Phone: (305) 885-9985 • Fax: (305) 885-9986

CIRCLE 267 ON READER SERVICE CARD

Ciao!, ¡Hola!, Привет!, Guten Tag!

From the HyperGlot Software Co., the Leader in Foreign Language Software for the Macintosh in Spanish, French, German, English, Russian, Italian, Japanese, and Chinese featuring extensive digitized sound or CD audio!



Call or write HyperGlot for your free catalog today!
800-726-5087 P.O. Box 10746, Knoxville, TN 37939-0746

CIRCLE 268 ON READER SERVICE CARD

Try Your Lawsuits with a Macintosh®

Organize your depositions with Ready For Trial!®



- Specially designed for transcripts
- Full-text search
- Uses standard ASCII transcripts from any court reporter
- Tracks all exhibits
- Generates powerful reports across any combination of witnesses by issue, by exhibit, or by date of the facts

Robins Analytics, Inc.

Call 1-800-767-3239
Only - \$995.00

CIRCLE 269 ON READER SERVICE CARD

Music For The Mac

The full scale of Products

- From basic instructional software, like our own Compose Yourself; to the intricacies of Hard Disk recording.
- Authorized dealer for Apple, Coda, Digidesign, Dr. T's, Mark of the Unicorn, Opcode, Panasonic, Roland, and more. Expert advice before you buy, and full tech support after you purchase!

MacBEAT
1314 Rufina Circle A4
Santa Fe NM 87501

Call the Experts at:
1-800-MAC-BEAT or
505-473-4929 fax: 505-473-4647

Free Catalog Available!

CIRCLE 270 ON READER SERVICE CARD

VERSION 2.3 • \$125

PRACTICA MUSICA™

Your personal music tutor



—MacUser, August 1990

- Intervals, chords, melody, rhythm
- Interactive staff notation • Scales
- Uses built-in sound or MIDI manager
- Historical & computer-generated melodies
- Custom ear training melodies • Scorekeeping
- Includes textbook • Beginning to advanced



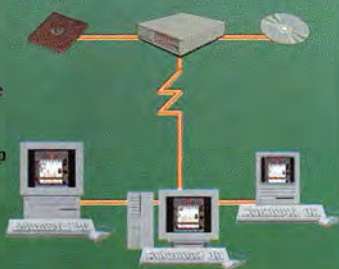
ARS NOVA • 800-445-4866 • Box 637 • Kirkland WA 98083

CIRCLE 271 ON READER SERVICE CARD

NEW! DriveShare™

Network Sharing of
Removable Hard Drives
Optical Drives
and More...

- ▶ One drive; Many users
- ▶ System 6.0/7.0 Compatible
- ▶ Fast, Easy, and Reliable
- ▶ Great for Network Backup



Versatile Removable Drive Server Software

Casa Blanca Works, Inc.
148 Bon Air Center, Greenbrae, CA 94904
CIS: 73750,1317 415.461.2227 Fax: 415.461.2249 AOL: CBWorks

CIRCLE 272 ON READER SERVICE CARD

Easy4D™

Simply the best 4th DIMENSION® development environment available.

—MacUser, Feb. '92

Using 4th DIMENSION?
Start with Easy4D. It gives you everything you need to create polished, professional databases in the shortest time. Features include:

- ▶ Fully functional layout templates
- ▶ Built-in mail merge
- ▶ On-line customizable help
- ▶ Codeless Custom Reports
- ▶ 30-day money-back guarantee
- ▶ Extensive documentation

"If you're looking for a shell that teams outstanding features with a well-designed interface, choose Easy4D."

—MacUser, Feb. '92, p. 60



Natural Intelligence, Inc.
2067 Massachusetts Ave., Cambridge, MA 02146
800-999-4649 • 617-876-4876 • Fax 617-492-7425

CIRCLE 273 ON READER SERVICE CARD

THE COOKBOOK GOES HIGH-TECH!



DIGITAL GOURMET ELECTRONIC COOKBOOK

- Over 1000 classic recipes
- Add your own recipes
- Instant nutritional count
- Extensive find/search
- Includes latest HyperCard



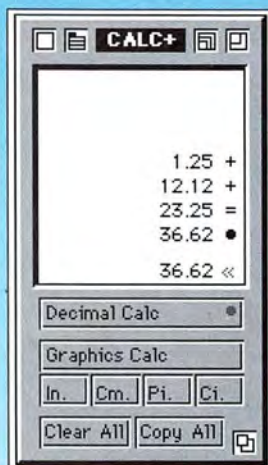
TeleTypesetting

Publishers of BOOKS-ON-DISK® Series
311 Harvard St., Brookline, MA 02146
(617) 734-9700 Fax: (617) 734-3974

\$69

CIRCLE 274 ON READER SERVICE CARD

"CALC+ is +++++"



Calc+ is a better, more productive calculator for your Mac, with professional decimal and desktop publishing features not found in the standard Mac calculator.

- **LARGE DISPLAY** - you can resize, scroll and edit even change the display font and size,
- **PAPER TAPE PRINTOUT** - for backup audit trails,
- **% KEY** • **CLEAR ENTER KEY** • **MINIMIZE BUTTON** and More.

Calc+ can also perform:

- **DESKTOP PUBLISHING CALCULATIONS** in inches, centimeters and picas.
- **INSTANT CONVERSIONS** between these units. Available from catalogs and dealers everywhere. Suggested retail \$79.

Call Now For More Info!

Abbott Systems Inc.

All our products come with free customer support.
1-800-552-9157 or 914-747-4201,
fax 914-747-9115.

CIRCLE 275 ON READER SERVICE CARD

UTILITIES-MISCELLANEOUS/ACCESSORIES



MacFreighter

Deluxe ATA Cases

- Wholesale prices
- Same day shipping
- Best cases for shipping or airline custom cases

MacBag

Absolutely The Best bag anywhere

- Best Protection
- Best Design & Features
- Complete line
- Super NoteTotes

Linebacker 1-800-228-7042

CIRCLE 277 ON READER SERVICE CARD



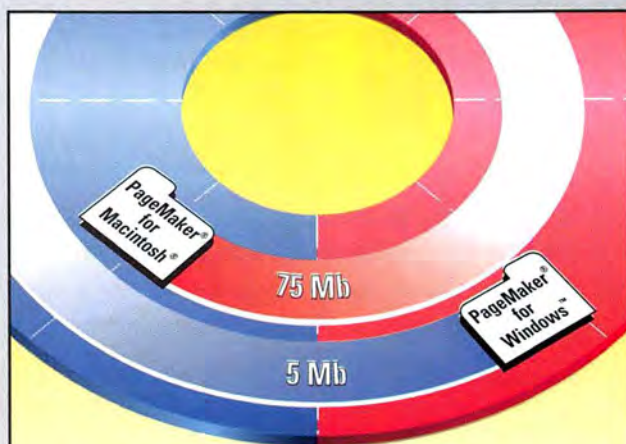
The MacLuggage™
Ultimate Notebook EX
Designed to carry the Mac PowerBooks and all accessories.

Dealers Welcome.

(800) 241-2122 • (215) 524-7277

I/O Design, Inc. • PO Box 156, Exton, PA 19341

CIRCLE 278 ON READER SERVICE CARD



Share Large Mac and DOS Files on the Same Disk Drive or Cartridge!

FormatterFive™ partitioning and file transfer utility gives you the power to:

- Move *large* files from PC to Mac and back easily
- Mount DOS volumes on your Mac desktop
- Read DOS formatted cartridges on your Mac
- Create Mac and DOS partitions on the same drive

Supports most popular hard drives, optical and removable cartridge drives: \$195.

Call (206) 487-0122
FAX (206) 487-0467

SOFTWARE
ARCHITECTS

CIRCLE 276 ON READER SERVICE CARD

Now, YOU CAN AFFORD TO LOOK AS GOOD AS YOU ARE!

MacUser's brilliant, four-color Premier section—packed with sales power and panache—is the ideal way to show 375,000 Macintosh business buyers that your cutting-edge company has truly arrived. Make your promotional launch to the "big time" with a Premier ad that's not only a beautiful showcase for your capabilities, but a truly affordable marketing enhancement. Call today for details!

MacUser Premier
800-825-4237

MacUser
MARKETPLACE

DISCOUNT IMAGERS™

As low as
\$1⁷⁵ PICT
\$3⁹⁵ PostScript

QUALITY SLIDES!

4k slides from any Macintosh program!

Don't be misled by other ads: we never charge a per-minute imaging fee!

24-hour turnaround:

\$4⁷⁵ PICT

\$7⁹⁵ PostScript

214•437•0696 Voice
214•907•8828 BBS

Other services available.

CIRCLE 280 ON READER SERVICE CARD

Now with
2 Locations

**Try Us
Free!**

Dupes and
Overheads too!

Slides From Your MAC

We want your business, and we'll prove it! We offer the best service available with experts in Persuasion, Powerpoint and others, waiting to take your call. Free Fed Ex shipping and phone support. And if you should make a mistake, we'll reimage your slides, free.

NOW - 2 locations, slide duplication, and overheads/prints available.



ACCENT
presentations, inc.

1-800-222-2592

San Diego, CA • Minneapolis/St. Paul, MN

The Economical Inkjet Printer Refill.

Introducing JetInc.™
from DGR Technologies.
The refill unit for your
Apple StyleWriter
& HP DeskWriter
inkjet printer.

Black Refill Twin Pack

\$15.99

• Colors available:
Black, Brown, Blue,
Red, & Green.

• Money-Back
Satisfaction
Guarantee!



1-800-235-9748



Tel (512) 476-9855 • Fax (512) 476-6399

DGR Technologies • 1800 Rio Grande, Suite 205 • Austin, TX 78701

CIRCLE 283 ON READER SERVICE CARD

Slide Imagers™

Postscript Imaging from Mac/PC Files
Such as Presentation, Drawing, and Page Layout Files

- 35mm Color Slides (4000 line)
- Canon CLC 500 Fiery Color Lasers
- Ilford Color Overheads and Prints
- Tektronix Thermal Prints and Overheads
- BBS Information Service (404)874-4804

Just send us your native files. Files received by 8 a.m. or Priority Federal Express are back to you the following morning. We make imaging easy... CALL TODAY!

The BEST PRODUCTS, TECHNICAL SUPPORT, & PRICES Available!

(800)232-5411 or (404)874-6740

22 Seventh St. N.E.
Atlanta, GA 30308

CIRCLE 282 ON READER SERVICE CARD

QMS™

Quality Supplies & Accessories

THERMAL TRANSFER PRINTERS:

Ink Rolls, Paper, Transparencies, Thermal Head Cleaners

LASER PRINTERS:

Toner, Developer, Drums, OPC Kits

ACCESSORIES:

Paper Trays, Cables,
Sheetfeeders

Overnight and
2nd day delivery
available*
*Additional Charge

ORDER TOLL FREE
1-800-354-3212

CIRCLE 284 ON READER SERVICE CARD

GIVE YOURSELF THE PREMIER ADVANTAGE!

The prominence and dominance of full-color display advertising at low, cost-effective rates is one of the smartest marketing enhancements you can give your products in front of 375,000 Macintosh business buyers.

MacUser Premier
800-825-4237

MacUser
MARKETPLACE

COST-EFFECTIVE FULL COLOR ARRIVES!

MacUser Marketplace Premier makes the power and panache of 4-color display advertising truly affordable. Let Premier launch your company to the "big time" - 375,000 proven, qualified Macintosh business buyers!

MacUser Premier
800-825-4237

MacUser
MARKETPLACE

PREMIER

HARDWARE/ACCELERATOR BOARDS

SPEED UP YOUR MAC!

68030 accelerator with 68882FPU for ONLY \$399.

25MHz w/FPU = \$499, 33MHz w/FPU = \$629, 68000/16Hz = \$249

Nobody else has it! **Laptop** kit for Plus/SE/SE30 Starts at \$999. 150MB Tape Backup \$399.

McMobile Inc. 119A Long Lane, Upper Darby, PA 19082 (215) 734-2222

CIRCLE 306 ON READER SERVICE CARD

MacUser
Marketplace
To place your ad call
(212) 503-5115
or (800) 825-4ADS

BAR CODING

Portable Bar Code Readers



Data collection is fast, easy, and extremely accurate when using Videx portable bar code readers. Cordless operation, compact size and light weight allow you to take the Wands wherever the work needs to be done. Call Videx today for your free information kit, 503-758-0521. Prices starting at:

Videx
TimeWand I \$248
DuraWand \$495
TimeWand II \$698
1105 NE Circle Blvd. Corvallis, OR 97330-4265
503-758-0521 • FAX 503-752-5285
TimeWand and Videx are registered trademarks of Videx, Inc.
CIRCLE 307 ON READER SERVICE CARD

BAR CODE & MAGNETIC STRIPE READERS FOR MACINTOSH PLUS, SE & II
Connects on keyboard or ADB
Requires no additional program or port
Does not affect keyboard or mouse
Industrial quality, heavy-duty units
Also available

SmartCard encoder reader
Magnetic encoder
Code & 39 UPC Printing Software
Portable Bar Code Reader

TPS Electronics
4047 Transport Street
Palo Alto, CA 94303
415-856-6833 1-800-526-5920
Telex: (Graphnet) 371 9097
FAX: 415-856-3843

CIRCLE 308 ON READER SERVICE CARD



ACCELERATOR-VIDEO BOARD
TWICE AS FAST AS THE CLOSEST COMPETITOR!

THE ONE BOARD SOLUTION

The ImagePro™ Board combines Video and Acceleration. It gives your Mac SE, Plus, or 512KE an upgrade you may have thought impossible. If you already own a large monitor, ImagePro's speed will knock your socks off! **ImagePro Boards start at \$695.**

The ImagePro Systems include a large B/W monitor and the ImagePro board. **ImagePro Systems start at \$1295.**

▼Speeds of 16, 25, 33 MHz ▼ Easy to install ▼ ImagePro Board compatible with most large monitors ▼ ImagePro System monitors 15", 19", and 24" ▼ 30 Day money-back guarantee ▼ Engineered by Novy Systems

Dealer Inquiries Welcomed

Free Brochure & Information

1-800-638-4784

IMAGEPRO
and ImagePro Systems

System Technology Corp. • 1860 Fern Palm Drive
Edgewater, Florida 32141 • Fax (904) 428-0765

CIRCLE 309 ON READER SERVICE CARD

BAR CODE READERS

- Top rated by independent review!
- Complete with steel wand — \$399
- 64K Portable with wand — \$799

"The WDP Reader is highly reliable and easy to use." Brett Fifield, Bitstream Inc.

WORTHINGTON 417 Ingalls Street
DATA SOLUTIONS Santa Cruz, CA 95060

- For all Macintosh models
- Attaches as second keyboard
- 2of5, UPC/EAN, 128, MSI, Code 39
- Magstripe, laser, or wand input
- Same day shipping, Free UPS Blue
- 2 year warranty
- 30 day money back guarantee

800-345-4220

OR 408-458-9938

Tell Your Source!

I Found it in **MacUser Marketplace**

COMPUTER SYSTEMS

CLASSIC 4/40	\$1049
CLASSIC II 2/40	\$1099
CLASSIC II 4/80	\$1399
LC 4/40	\$1399
LC 4/80	Call
SI 5/80	\$2289
SI 5/105	\$2349
SI 5/120	\$2379
SI 5/240	2749
II CI 4/80	\$2899
II CI 4/120	\$2999
II FX	\$CALL
QUADRA 700	\$4249
QUADRA 700 4/80	\$4649
QUADRA 900	\$5399
Powerbook 100 2/20	\$1869
Powerbook 140 2/20	\$2269
Powerbook 140 4/40	\$2799
Powerbook 170	\$3769
Laser Writer II G	\$3449
Laser Writer II F	\$2729
Style Writer	\$415
Radius Color Pivotal	\$1245
Radius B/W Pivotal	\$685
Radius Rocket 040	\$1589
Radius Power View	\$509
Sony 1304/1604	\$569/\$979
Apple One Scanner	\$999
Supermac Accelerator	\$99
Supermac 8bit Spect. III	\$529
Apple Original 40MB	\$185
Apple Original Cache	\$99

We only sell new computers!

We will not be **UNDERSOLD.**

Micro USA

310-473-2535

Fax us a quote 310-473-5236
2329 PURDUE AVE., LA., CA. 90064
NO CREDIT CARDS PLEASE

CIRCLE 310 ON READER SERVICE CARD

ACCESS II

USED MAC EQUIPMENT

DON'T BUY OR SELL ANY NEW OR USED EQUIPMENT UNTIL YOU TALK TO US.
WE DEAL EXCLUSIVELY IN MACINTOSH SYSTEMS AND PERIPHERALS.

800-662-5606

26 KEEWAYDIN DRIVE • SALEM, NH 03079

CIRCLE 312 ON READER SERVICE CARD

CRA Systems Inc.

700 So. University Parks Dr.
Suite 350
Waco, TX 76706

We Buy and Sell New and Used Systems Any Quantity

Call 1-800-375-9000

International Sales 817-754-2120 TeleFax 817-754-2345
Consultants/Dealers 817-754-2131 Corporate and Univ. PO's Welcome

New Macintosh CPU's (Le, Si, Ci, Fx, Quadra 700 & 900, Powerbook 100, 140, 170)
Used & Demo Macintosh CPU's (Se, Sc30, Portable, II, Cx, X, Ci, Ci, Fx)

CLEARANCE SPECIALS

LASER PRINTERS	Call	\$299	Sony 1908 Industrial Trinitron (New)	\$2699
Apple LaserWriter IIX, IIX XL, IIX XL	Freehand	\$340	Sony 19" Trinitron DEMO	\$1999
LaserWriter Plus w/NEW Printer Engine	MacDraw II (w/one Pro Upgrade)	\$279	Supermac 19" Color New & Used	\$1799
Minoltahi G170-1601 Color 300dpi NEW	MacProject II	\$249		
w/Freehand of the Press Postscript driver	Mac Write II	\$99		
NEC NewGen QMS & T1	Macintosh Works v.1.10	\$155	FaithPath 4 Ethernet Router NEW	\$1499
QMS Colorscript 100-10 Demo	PageMaker 3.02 (300 upgrade)	\$375	Howtek Scanner III w/Trans Opt. NEW	\$3999
QMS PS Jet Plus Ippen Postscript Laser			HP Scan Jet 400 dpi 1600 DEMO	\$899
Name Controller		\$1295	LaserWriter Plus Upgrade Rom NEW	\$399
600 X 600 DPI Postscript Laser	Apple Color & Monochrome	Call	Maxtor 650 meg SCSI NEW	\$1499
AMD 29000 Risc Processor 7mega, 30pin. From	6-Machines Color Page 15" w/Bit NEW	\$1100	Max. Montage & Agfa Film Recorders	Call
SOFTWARE OVERSTOCK	Minoltahi 16" 1024 X 768 w/8bit	\$1999	PhotoNet StarController NEW	\$750
Adobe Type Manager	Radius Grayscale & Color	Call	RasterOps 24L 24 bit video board NEW	\$1999
Dadkri v.1.5	RasterOps Trinitron, 8 & 32bit	From	Radtime 210 Colors	\$699
	Sony 13", 14", 19" Trinitron	Call	Sharp JX450 11x17 color 24 bit scanner	Call

CALL US FOR ALL YOUR MACINTOSH NEEDS USED OR NEW

CIRCLE 313 ON READER SERVICE CARD

CLASSIFIED

MacUser
MARKETPLACE

COMPUTER SYSTEMS



Computer Design & Graphic Systems™

Specialists in Graphic System Configurations ▶▶▶▶▶

CGG CUSTOMERS...
THANK YOU!
#1 Supplier to the Graphics Industry

CPU'S

CALL FOR UPDATED PRICING
MAC Ilci 340.....\$1989
MAC Ilci 5MB.....\$2649
MAC Ilci 5105.....\$2999
MAC Ilci 8240s.....\$3489
Quadra 700.....\$4199
Quadra 900.....\$5199
PowerBook 170.....\$3849
PowerBook 140.....\$2449
Classic II 240.....\$1199

MONITORS

GoldStar 14" Color.....\$349
Seiko 14" Trinitron.....\$579
E-Machines T16.....\$1595
19" Ikegami Trinitron.....\$1949
RasterOps 16" 24 bit sys \$1849
NEC 3FGX.....\$669
SuperMac 20" Color.....\$1599
SuperMac 21" Color.....\$2749
RasterOps 19" color.....\$1599
Radius 20" Multisync.....\$2740

PRINTERS

GCC BLP Elite... \$100 Rebate
GCC PLP II... \$100 Rebate
NewGen PS400P.....\$2099
NewGen PS840E.....\$3795
Microtech Truelaser.....\$1299
NEC Colormate.....\$4392
NEC Silentwr. 95.....\$1449
QMS 815MR.....\$3849
Seiko ColorPoint.....\$3999
QMS PS-410.....\$1499

STORAGE/MISC.

Ricoh 128 MB Optical....\$1359
CORE 128 MB Optical....\$1499
Pinnacle 128 MB Optical....\$1599
Microtech 128 Optical....\$1575
Panasonic 1 gig Optical....\$2999
Global Village PB fax/mod....\$539
80 MB HD for PowerBook...\$649
PowerBook 6MB Memory...\$549
APPLE 40 MB HD.....\$169
ALL POWERBOOK ACCESSORIES

DISPLAY CARDS

RasterOps 24 XLTV.....\$2549
RasterOps 24STV.....\$799
RasterOps 24XLI.....\$1849
VideoSpigot sl.....\$399
VideoSpigot Pro.....\$1195
Envivio 8 bit Powerbk Adapt \$599
E-Machines Futura 24 bit...\$969
E-Mach Futura MX 24 bit...\$1329
SuperMac Thunder 24...\$2649
RasterOps Media Time....\$1499

SCANNERS

UMAX UC630.....\$1299
Microtek 600 zs.....\$1349
UMAX True 1200 DPI.....\$4595
Howtek 11" x 17".....CALL
Sharp JX-320.....\$1199
Sharp JX-450.....\$4295

Lowest Prices
on Graphic
Software!

▶ **FREE SHIPPING!** ...call for details

▶ Over 2,700 products for the serious... *Graphics User!*

E-MACHINES

GCC TECHNOLOGIES

NEC

QMS

rad is

RasterOps

SuperMac

SII



Specialists in Graphic
System Configurations

800 741 6227

1436-1 Park Shore Center • Ft. Myers, FL 33901

LOCAL: 813-278-3180 • SUPPORT: 813-278-4964 • FAX: 813-278-5181

CIRCLE 314 ON READER SERVICE CARD

**Mac
In
Town**

**WE PAY TOP DOLLAR
FOR USED MACS!**

If you need a MAC,
the place to call is
MAC IN TOWN
(201) 224-4273
(201) 224-6449 FAX

CIRCLE 315 ON READER SERVICE CARD

Macs/Parts/Upgrades!

Used Macs!

Quadra 700....\$4299.
P'Book 140 2/40 2799.
P'Book 170 4/40 3999.
Mac Ilfx 0/0.... 3299.
Mac Ilci 0/0.... 2499.

Parts/Upgrades!

Ilci to Quadra \$2699.
Ilci to Quadra 3199.
II to Ilfx..... 2199.
Image II to Stylewriter 199.
8-Bit video bd. 199.



Shreve Systems

3804 Karen Lane Bossier City, La. 71112

Call for
Catalog!

Tech. 318-742-0546
FAX 318-742-2799

800-227-3971 We Buy
Macs!

CIRCLE 316 ON READER SERVICE CARD

#1 Best Mac Buys

When it comes to used Mac's, we're the best. As the Nation's largest buying force, we stock over \$1 million in used Mac's, unmatched anywhere and at the lowest prices around. When we say refurbished, that's exactly what we mean, not wipe and send. Our quality control department assures you the best machine available for the money—or your money back—guaranteed.

**For Free Catalog
Call Anytime
1-800-821-3221**

Box 4059—Logan, UT 84321, Fax: 801/755-3311

CIRCLE 317 ON READER SERVICE CARD

MacBYTE

22775 Pacific Coast Hwy, Malibu, CA 90265

Buy • Sell • Trade Macintosh Computers

Cash For Your Mac or Peripheral
Low & High End Custom Setups
Preworn Macs with Warranty
FAX 310-317-1583

800-432-BYTE
OPEN MON. - SAT.

CIRCLE 318 ON READER SERVICE CARD

CLASSIFIED

COMPUTER SYSTEMS

Mac
S · A · L · E
INTERNATIONAL
New Jersey



We also offer

TI
H.P.
NEC
QMS

SONY
RADIUS
SyQuest
RasterOps

DAYSTAR
QUANTUM
SUPERMAC
E-MACHINES

HARRIS LABS - "PERFORMER"
GCC TECH
MASS MIRCO
APPLIED ENG.

Entire Macintosh Line
New and Used, Bought and Sold
Latest models in stock!

1-800-729-7031

Compare Our Prices, Quality & Service.

We'll pay cash for your Macintosh Equipment.

CIRCLE 319 ON READER SERVICE CARD

MAC PRO

(818) 719-0007 Fax (818) 719-9115

POWER BOOK	ALL MODELS	CALL
QUADRA 700 4/80		4495
QUADRA 700 8/200		4995
QUADRA 900 4/200		5895
MAC II FX		CALL
MAC II CI 5/80		CALL
MAC II CI 8/200		3395
MAC II SI 5/80		2395
MAC II SI 3/40		2049
MAC LC 2/40 KEYBOARD & APPLE 12" RGB		1795
CLASSIC & CLASSIC II		CALL
LASER WRITER II F		2688
LASER WRITER II G		3388
APPLE PERSONAL NT		1699
QMS 410		1749
MONITORS: APPLE, RADIUS, SUPERMAC, SEIKO, IKEGAMI		CALL

QUALITY, AVAILABILITY, SERVICE & BEST PRICES.

ALL ITEMS NEW, 1 YEAR WARRANTY.

19801 VENTURA BOULEVARD
WOODLAND HILLS, CA 91364

CIRCLE 320 ON READER SERVICE CARD

DEALERS & INTERNATIONAL SALES WELCOME

MAC CLASSIC 2/40	.....\$1075
MAC CLASSIC II	.....CALL
MAC LC 4/40	.....\$1449
MAC II SI3/40-5/80	.....CALL
QUADRA 700/900	\$4195/CALL
MAC II CI Base	.....\$2589
POWER BOOK 140 2/40	\$2649
POWER BOOK 140 4/40	\$2839
POWER BOOK 170 4/40	\$3779
LASER IIF/IIG	.....\$2689/CALL
LASER WRITER LS	.....\$839
STYLE WRITER	.....\$389
QMS 410/810	.....\$1635/\$2495
QMS COLOR	.....CALL
COLOR 12" APPLE	.....\$399
COLOR 13" APPLE	.....\$659
PIVOT/PIVOT COLOR 739/1285	

WE CARRY MAC SOFTWARE
MAC DEALER
213-655-9666
818-342-4488

SALES & SERVICE

CIRCLE 322 ON READER SERVICE CARD

MACMARKET 800-223-4-MAC

PowerBk 100, 2/20, fdd.	\$1515
PowerBook 140 4/40	.....\$call
PowerBook 140 4/80	.....\$3355
PowerBook 170 4/40	.....\$3838
PowerBook 170 8/80	.....\$4848
Classic 2MB•40HD	.....\$969
Classic 4MB•105HD	.....\$1393
Classic II 4MB•80HD	.....\$1388
Classic II 10/105 & FPU	.....\$1991
Mac LC 4Mb•40 HD	.....\$1393
Mac LC 10Mb•120 HD	.....\$2121
Mac IISI 3MB•40HD	.....\$1949
Mac IICI 5MB•120HD	.....\$2992
Mac IICI 8MB•240HD	.....\$3535
Quadra 700 8/120	.....\$4747
Quadra 700 20/240	.....\$5445
Quadra 700 20/425	.....\$5995
Quadra 900 20/240	.....\$6666
Stylewriter complete	.....\$349
Apple Personal NT	.....\$1399
Apple Laser IIF	.....\$2696
Apple Laser IIG	.....\$3434
HP Deskwriter complete	\$424
HP Deskwriter color	.....\$727
UMax Scanners	.....\$call
Apple 12" (Color 68 dpi)	.....\$424
Apple 13" (Color 72 dpi)	.....\$666
Seiko 14" (Color Trinitron)	.....\$565
Radius Pivot (16 shades)	.....\$727
Pivot Color (16 colors)	.....\$1292
SuperMac 19" Color & SuperMac 24bit card	2992

Please call or fax for custom configurations!
Prices are subject to change without notice.

All systems new•One Year Warranty
Visa & MC add 2%

818-343-4087 (CA)
FAX: 818-343-2376

CIRCLE 323 ON READER SERVICE CARD

1-800-334-KIWI

Mac Classic 2/40mb	.....\$Call
Classic II 2/40mb	.....\$Call
Classic II 4/105mb	.....\$Call
Mac LC 4/40mb with 14" color monitor	.....\$Call
Mac LC 4/105mb with 14" color monitor	.....\$Call
PowerBook 140	.....\$Call
PowerBook 170	.....\$Call
Mac IISI	.....\$Call
Mac IICI	.....\$Call
H.P. Deskwriter	.....\$450
H.P. Deskwriter C	.....\$750
Personal Laser LS	.....\$899

All items new. 1 year warranty.

Most items in stock today.

Visa & Mastercard No Surcharge.

C.O.D. orders accepted.

Established 1988. Better Business Bureau member.

Kiwi Computers is not affiliated with Kiwi Software Inc.

KIWI COMPUTERS
P.O. Box 67381
Los Angeles CA 90067
US & Canada (800)334-5494
In California (310)553-4507
Fax (310)286-9667

Mon-Fri 8.30am-4.30pm PST

CIRCLE 324 ON READER SERVICE CARD

WANTED: USED MAC'S

WE BUY YOUR USED MAC EQUIPMENT FOR TOP DOLLAR, CASH! WE SELL REFURBISHED MAC'S AT DISCOUNT! CALL FOR QUOTE. **RENTEX INC.** (800) 545-2313, (617) 423-5567

CIRCLE 321 ON READER SERVICE CARD

FOUND A BARGAIN?

Let Your Source Know You Found it in
MacUser Marketplace

CLASSIFIED

MacUser
MARKETPLACE

COMPUTER SYSTEMS

Mac-In-Stock

- Macintosh Computers
- High-End Display Systems
- Leading Storage Products
- Printers/Scanners/ & More!
- Expert Assistance
- Toll-Free Support
- Free Warranty Repair
- Rock-Bottom Prices



©1992 HiRel Marketing, Inc. dba Mac-In-Stock, Ft. Lauderdale, FL

SHOP FOR THE BEST PRICE. (But Make Sure These Four Freebies Are Included:)

1. Service

Work with a Mac pro, not an order taker. Expert help ensures the right choices for your needs and budget.

2. Selection

Classic or Quadra. Custom or standard. Apple or third party. We'll help you build your system, your way.

3. Safety

Mac-In-Stock is the only dealer that will bench test your system, and use double boxes for safe shipment.

4. Support

Tech support is toll free. Repairs or replacements are handled via Federal Express (in and out at our expense).

Want great prices and great service? Call:

800-944-MACS

Fax: 305/321-0905 • Int'l: 305 321-0904

CIRCLE 325 ON READER SERVICE CARD

\$99
per mo

Mac
SE



Next Day Delivery
Anywhere in the U. S. A.

PC Computer Rental

RENTALS

Also Available:

- Macintosh
- IBM PS/2
- Compaq
- Laser Printers
- Laptops
- Portables

And a host of other peripherals

Call Toll-Free

800-765-4727

CIRCLE 326 ON READER SERVICE CARD

datalink resources

Everything Macintosh

SALE (800)MAC-5265

Entire Line of Apple Products.
Major Brand Laser Printers, Monitors
Scanners, Hard Drives, Interface Cards

Classic II 2/40 \$1399
LC 4/40 \$1599
IISI 3/40 \$2089
IICI 4/105 \$3229

New Mac Quadra's
PowerBooks In Stock
Great Prices
CALL

MCVISA Accepted

FREE SHIPPING

Intl Tel: (512)323-0040 Fax (512)323-5465

4525 Avenue-H, St. A, Austin, TX 78751

CIRCLE 328 ON READER SERVICE CARD

DATA RECOVERY SERVICES

DATA RECOVERY / PROTECTION

- Reasonable Rates • Fast Turnaround
- PHONE BEFORE SENDING A DRIVE!
- Hard Drive Services: Acceleration (2x +)
- Sales (Seagate) • Remote Management
- Protection Services: Surge (Lifetime wnty)
- UPS (5 yr warranty) • Line Conditioning
- We Carry PANAMAX® Surge/UPS
- Protection Products exclusively!
- Business Computers
- 613 Walnut, Rock Springs WY 82901
- Phone/VoiceMail/Fax (307) 362-6321

DISK DRIVES

BUY LOW

Save a bundle on new and used Macs and get our one year warranty.

SELL HIGH

We'll pay you top dollar for your pampered Mac.

Dial 1-800-MacSwap
(1-800-622-7927)

MacSwap
A Logical Choice Company
WOODBIDGE, NEW JERSEY

MacUser Marketplace

To place your ad call
(212) 503-5115
or (800) 825-4ADS

the mac store

Best Prices in Canada Since 1989
No Customs Hassles
The Best Warranty In The Business
Same Day Repair/Replace
Satisfaction Or Money Refunded
True Mac Experts On Staff
All Major Hardware, Software
Service Contracts

(416) 466-8107 (800) 263-7805

CIRCLE 327 ON READER SERVICE CARD

SUPER DEALS ON USED/NEW MACS!

- BUY • SELL • TRADE • USED • NEW •
- Mac Plus/SE 549/798
- Mac Classic 4/52 (New) 1249
- Mac IIcx/x/ci 2249/2349/2949
- Mac Power Books, Classic II, Quadras LOWEST
- Other Macs and all peripherals CALL
- Call for Daily SPECIALS! •
- M.P. - Computer Micro Systems
- 655 West Evelyn Ave., Suite #2
- Mountain View, CA 94041
- (415) 960-1514 FAX (415) 968-0509

DATA RECOVERY SERVICES

WE CAN SAVE IT!



- Macintosh Data Recovery
- Repair any Mac Hard Drive
- Optical/SyQuest Recovery
- Fast Nationwide Service

30-D Pamaron Way
Novato, CA 94949

CIRCLE 329 ON READER SERVICE CARD

BIG, HARD, DRIVES

HEWLETT PACKARD

Access	Internal	External
220MB 3.5" 12.6ms	\$ 739	\$ 819
322MB 3.5" 12.6ms	\$ 1,099	\$ 1,179
402MB 3.5" 12.6ms	\$ 1,299	\$ 1,369
1360MB FH 13.5ms	\$ 2,579	\$ 2,699

FUJITSU

425MB 3.5" 12ms	\$ 1,149	\$ 1,219
520MB 3.5" 12ms	\$ 1,229	\$ 1,299
1050MB FH 14ms	\$ 1,949	\$ 2,069

QUANTUM

52MB 1"Hi 9ms (eff)	\$ 219	\$ 289
105MB 1"Hi 9ms (eff)	\$ 335	\$ 399
240MB 1"Hi 8ms (eff)	\$ 699	\$ 769

TAPE BACKUP

250MB Sankyo 1/4" Tape Drive*	\$ 649
525MB Sankyo 1/4" Tape Drive*	\$ 799
2000MB Hewlett Packard DAT Drive	\$ 1,549

SATURAE

Saturae Corporation

800-373-3063

International Orders (617) 661-8166 Fax Orders (617) 661-4047

CALL US 9AM to 8PM EST Monday-Friday

VISA, MC, Discover, FedEx COD, Accepted No Surcharge. AmEx Accepted
External drives have a zero-footprint cabinet. Internal drives include all cables and brackets. FH internal drives for Mac II, IIfx, IIfx only.
1"Hi internal drives for all Mac models. HP and Fujitsu have a five year warranty. Quantum and Sankyo have a two year warranty.
148 Richdale Avenue Cambridge, MA 02140

CIRCLE 330 ON READER SERVICE CARD

GENERAL

Pre-Owned Electronics™

INCORPORATED
THE Independent Provider, serving the Dealer, Professional, Corporate, Government & Educational Buyer since 1985

Apple & Macintosh Systems,
Parts, and Exchange Repairs

**WE BUY
MACS!**

CALL FOR
A CATALOG **(800)274-5343** Int'l: (617)275-4600
205 BURLINGTON ROAD ■ BEDFORD ■ MA 01730
FAX: (617)275-4848

CIRCLE 331 ON READER SERVICE CARD

!!!!REPAIRS BY MAIL!!!!

Low cost, fast turnaround. Mac +, SE Logic Board swap, \$225.00 + S&H. One year warranty. Power Supplies as low as \$100 + S&H. Keyboard repairs as low as \$12.50 + S&H. Open 12 to 10 Eastern Time. We buy dead Macs, PCs, Apples, Arminius Pubs. and Prods, Inc. POB 1265/8519 Orchard Merchantville, NJ 08109 (609) 662-3420

MEMORY UPGRADES

PB Ram™

Memory For All Powerbooks



\$Lowest per 2 MByte

- 2/4/6 MByte
- Upgradeable!
- Gold Plated

16 MB SIMM's \$825

(for Mac IIci, IIsi, IIfx, Quadras)
• 16 or 32 MB SIMM kit (4 or 8-4 MB / 30ms) for the Mac II, IIs, cx, ci, si, fx, Quad's \$555 / \$1110
• 8 MB kit for the Mac LC \$278
• 2 MB SIMMs for the Mac IIsi, IIfx, LC \$89
• 4 MB SIMM kit for any Macintosh \$149

PortaRam™

for the Mac Portable



\$215* per Mega-byte (1 to 8)

• Call if you find a lower price - we'll beat it!

• One to Eight Megabyte
• Built-in Surge Protector
• Uses RAM Slot - Not PDS

• User Upgradeable!
• Gold Plated Boards
• Very Thin 5/8" Max

Shadow Technologies

1767 Morning Glory Road

Livermore, CA 94550

VISA MC (510) 548-0130

CIRCLE 332 ON READER SERVICE CARD

MacUser Marketplace

To place your ad call
(212) 503-5115
or (800) 825-4ADS

INSURANCE

INSURES YOUR COMPUTER

SAFWARE provides full replacement of hardware, media and purchased software. As low as \$49 a year provides comprehensive coverage. Theft, fire, power surge, storms and more. No lists of equipment are needed. One call does it all! Call 8am to 10pm ET (Sat. 9 to 5). SAFWARE, THE INSURANCE AGENCY INC. 2929 N. High Street, P.O. Box 02211 Columbus, OH 43202 (800) 848-3469 (NAT) or (614) 262-0559 (OH)

ComputerInsurance PLUS

Insure in one easy step! ComputerInsurance PLUS replaces your computer after fire, theft, power surge, natural disasters, including earthquake. Call NOW to receive comprehensive coverage and full replacement. The ComputerInsurance Agency, Inc. 6150 Old Millersport Rd., NE Pleasantville, OH 43148 (800) 722-0385

Hours:
10 a.m.-6 p.m.

MEMORY UPGRADES

RAM Cards and Big Screen Video for the Mac PowerBooks.

Mighty ideas from little Macs grow.



The Macintosh PowerBooks bring a new era of flexibility to Mac computing. Now you can have a real Mac the size of a book that fits in your briefcase. To make those mighty ideas grow, you need more RAM and a big screen. Here they are:

1. **BookRAM™** memory card for all PowerBooks. Comes with 2 megs, 4 megs or 6 megs of Pseudostatic RAM, factory upgradeable. Makes your Powerbook a MultiFinder monster with new memory elbowroom.
2. **BookRAM™ DRAM** memory card. Deft circuit design yields low cost and low power drain for a 4 meg card. Maintains battery life.
3. **BookView™** An adapter for a second external screen in addition to the current screen. A dealer installed adapter that duplicates the visual display on the built-in LCD screen and interfaces to major displays.
4. **BookView™ Imperial**. Adds 4 megs of DRAM and provides color or grey scale

monitor output for the 68030 models and monochromatic output for the 68000 model. Supports standard and full page VGA, Apple monitors, NTSC and overhead projectors.

Call for prices on 1 meg, 2 meg and 4 meg SIMMs, Softstep® and Two Step™ memory expansion modules, Pac RAM™ for the Portable, Video Mac Pac for the Portable, and Mac Rescue™ upgrade board for Enhanced 128K & 512K Macs.

Ford Centre, Suite 1180
420 North Fifth St.
Minneapolis, MN 55401
(612) 371-0061
(800) 950-CARE (2273)
(612) 371-9342 Fax
AppleLink: D6962



Computer Care

Dealer inquiries welcome. Visa, MC, AMEX, Discover accepted.

CIRCLE 333 ON READER SERVICE CARD

Tell Your Source! I Found it in MacUser Marketplace

MEMORY MADNESS

FROM THE LLB COMPANY



**BERNOULLI
DISKS
ARE FINALLY HERE!**

SIMMs

\$36 **\$122** **\$79**
1x8x80 **4x8x80** **2x8x80**

1x8x70	\$38	1x8x80FX	\$38	8x8x80FX	\$445
1x8x100	34	1x8x70FX	39	16x8x80	799
4x8x70	127	4x8x80FX	127	16x8x80FX	799
4x8x100	123	4x8x70FX	129		
4x8x80 MacII/IIx ...	151	8x8x80	445		

APPLIED ENGINEERING



\$219 QuickSilver IIsi

QuickSilver IIsi with FPU	\$279
Quadralink	182
Transwarp LC: 33mhz	919
40mhz	1259
50mhz	1389
Transwarp SE	729

QUICKTEL FAX MODEM

Xeba 9600 Baud
Send/Receive
Fax Modem **\$195**

44MB
\$66
88MB \$119



SYQUEST CARTRIDGES

BERNOULLI FROM IOMEGA

Removable Disk 3 Packs:
44MB\$265 90MB\$435

COMPARE OUR LOW SHIPPING PRICES:

\$6 Overnight shipping by Airborne Express. **\$3** Ground shipping by UPS.

CD GALLERY FROM NEC

NEC 36/ CDGM1 **\$495** NEC 73/ CDGM1 **\$735**

POWERBOOK

RAM: **\$259** **\$429** **\$615**
2MB 4MB 6MB
Roadrunner 80MB Internal
Hard Drives\$769
Carrying Cases 109

DAYSTAR

Universal PowerCache:
33mhz ...\$659 with FPU859
40mhz859 with FPU...1059
50mhz ...1319 with FPU...1589

TECHNOLOGY WORKS

 Iici Cache Card.....\$151
Mac IIsi Adapters ... 129
TECHWORKS LC Video RAM65

MISCELLANEOUS

Mac Portable SIMMs: 1MB \$199
3MB...\$515 • 4MB...\$615
Math Co-Processors: 16mhz
for LC or Classic II75
Quadra 256K Video RAM48

**FAX YOUR ORDER 24 HOURS
A DAY**

(206) 454-7302

- Orders received before 7:30 PM Eastern Time weekdays ship the same day.
- We export to most countries in the world.
- Bank cards accepted. Your card is not charged until the order is shipped.
- Quantity pricing for dealers.

ALL GOVERNMENT & EDUCATIONAL PO'S ACCEPTED

Call Between 7AM and 6PM Pacific Time

1-800-848-8967

The LLB Company, Inc. • 300 - 120th Ave NE • Bldg. 7, Suite 108
Bellevue, WA 98005 • Phone: (206) 454-7258



CLASSIFIED

MEMORY UPGRADES

MEMORY UPGRADES

POWERBOOK 2MB-6MB
100, 140, 170

MAC PORTABLE 1MB-8MB
Static & pseudo static

SIMMS
1MB-16MB

CACHE CARDS
ACCELERATOR CARDS
FAX/DATA MODEMS

To order call:

1-800-292-7771

For Instant Product Information via **ROBOFAX**
Call: 1-800-424-FAXX Day or Night

ADD-ON AMERICA
A DIVISION OF ROM CORPORATION

433 N. Mathilda Ave.,
Sunnyvale, CA 94086

Phone: 408-746-1590 Fax: 408-746-1593

CIRCLE 335 ON READER SERVICE CARD

MEMORY & ENHANCEMENTS

Visa & MC adds 3% • Lifetime Warranty • Overnight Shipping \$8•

SIMMS: 1, 2, 4, 16 Meg
IIci & IIsi Cache Cards
TI MicroLaser Boards
PowerBook 2, 4, 6 Megs
Quadra Video SIMMS
Mac LC Video SIMMS
IIsi dual slot / 68882 cards

68030 Accelerators
Mac IIci speed (25mhz) for
512Ke, Plus, SE, Classic.
Includes 68882 FPU! \$549

68882 Math Co-processors:
Mac LC, IIsi, and Classic II

PERIPHERAL OUTLET
• 800-256-6581 •

327 E. 14th
Ada, OK 74820
405-332-6581
Fax 405-436-2245

CIRCLE 336 ON READER SERVICE CARD

MEMORY PLUS

1-800-388-7587

43 Hopkinton Road
Westboro, MA 01581
(508)366-2240
Fax: (508)366-7344

Simms 1, 2, 4 & 16M
LC & IIsi 68882 FPUs
Powerbook Ram 2,4, & 6M
Video Ram LC & Quadra
Power Book Fax Modem
68030 Upgrades - Plus & SE

IIci & IIsi 64K Cache Cards
IIsi 030 Slot Adaptors
Mac Portable 2 & 4M
Mac Classic 1M & 3M
Sonnet Font Card NTX
Laser Printer Memory

Master Card - VISA - American Express
Approved Government, University & Corporate
P.O.s accepted

Great Prices - Great Service
CIRCLE 337 ON READER SERVICE CARD

MEMORY DIRECT

"Don't pay retail...buy direct"

DAYSTAR
DIGITAL

Accelerators for your Mac

MAC LC, IIsi, IIfx, IIx	IIx, IIfx, IIsi, IIfx w/ 68882 Math Chip
256K/4 PowerCache	\$749
4096K PowerCache	\$949
5040K PowerCache	\$1640
FastCache IIsi	\$315
FastCache IIfx	\$360
SCSI power Card \$1149	
0-256 Meg RAM Power Card - \$749.	

SUPERMAC

Accelerated Graphic Cards	Displays
Thunder/24	\$3399
Thunder/16	\$1399
Spectrum/24 PDQ	\$1029
w/ Display Calibrator	\$1029
Spectrum/16-24 PDQ	\$1029

Call us Toll-Free for step by step installation instructions!

P.O.s accepted for:
• Fortune 1000 • Government • Educational Institutions

Lifetime Warranty
Free tool included
Same Day Shipping

MEMORY

Memory Upgrades for your Macintosh

MAC CLASSIC
1 MEG BOARD - \$89. • 2 MEG KIT - \$92

MAC PORTABLE
1 MEG KIT - \$199. • 2 MEG KIT - \$499.
3 MEG KIT - \$749. • 4 MEG KIT - \$949.

MAC LC
2 MEG KIT - \$92. • 4 MEG KIT - \$210.
8 MEG KIT - \$390. • 16M VRAM - \$110

MAC IIsi
4 MEG KIT - \$178. • 8 MEG KIT - \$420.
16 MEG KIT - \$740.

MAC SE/30, IIfx, IIfx
4 MEG KIT - \$178. • 8 MEG KIT - \$352.
16 MEG KIT - \$740. • 32 MEG KIT - \$1432.

MAC II, IIfx
4 MEG KIT - \$178. • 8 MEG KIT - \$352.
16 MEG KIT - \$740. • 32 MEG KIT - \$1520.

MAC FX & LASERWRITER II NTX
4 MEG KIT - \$199. • 16 MEG KIT - \$610.
32 MEG KIT - \$1599.

8 MEG SIMMS - CALL
16 MEG SIMMS - CALL

HARD DISKS

QUANTUM	Internal	External
52MB	\$259	\$339
105MB	\$469	\$539
120MB	\$629	\$699
210MB	\$785	\$845

MAXTOR	Internal	External
340MB	\$1439	\$1539
760MB	\$1699	\$1859
1.2Gig	\$2739	\$2959

SYQUEST
45MB Removable
with Cartridge **\$459!**

ASANTÉ NETWORK PRODUCTS

NuBus Adaptors (MAC II, IIfx, IIfx, IIfx, IIfx)
Mac Con. + II ET (Thick & 10 BaseT) \$299
with 64K \$319
PDS Adaptor (Mac IIsi, & SE 30)
Mac Con. + 30 ET (Thick & 10 BaseT) \$289
with 64K \$319
Adaptor For Mac II LC
Mac Con. + LC \$289
Friendly Net (supports Apple Cabling Sys.) \$279
Asante 10T Hub (14 ports) \$799

1-(800) 486-CHIP (2447)

CIRCLE 338 ON READER SERVICE CARD

Prices subject to change

SIMMS

CALL FOR LOWEST PRICES ON
MAC SIMMS 256K TO 4 MEG. AS
LOW AS \$35.00 PER MEG

INSTALLATION INSTRUCTIONS INCLUDED

LIFETIME WARRANTY

NO SUR-CHARGE FOR MC OR VISA

1-800-662 SIMM

WE'VE BEEN IN THE SEMICONDUCTOR

BUSINESS FOR 28 YEARS

DATA MEMORY SYSTEMS CO
508-683-2325 FAX 508-975-5232

CIRCLE 339 ON READER SERVICE CARD

PERIPHERALS

Category
begins on
the next page.

MacUser Marketplace

is a special economical section for product and service listings.

800-622-6885

UNPRECEDENTED VALUE AND SERVICE
ONLY FROM MACOUTLET



TOLL FREE LINE FOR
BOTH ORDERS AND
TECHNICAL SUPPORT

THREE-YEAR
WARRANTY ON ALL
RASTEROPS
SUPERMAC AND
DAYSTAR

BEST TECHNICAL
SUPPORT AVAILABLE

30 DAY MONEY BACK
GUARANTEE

MacOutlet Welcomes



Fusion Data and

TECHWORKS



RasterOps

NEW !!! RasterOps PaintBoard 24 System **\$3995.**

19" RasterOps Trinitron with 24 bit accelerated video board

NEW !!! RasterOps MediaTime **\$1795.**

24 bit board w/ real time digital video and 16 bit digital audio.

NEW !!! RasterOps 16" Color Monitor **\$CALL.**

RasterOps own technology. Made in USA

NEW !!! RasterOps 8XL 1960H System **\$2139.**

RasterOps 8L/24L 1960 System **\$3100./\$3495.**

RasterOps 24L 16" Trinitron System **\$2495.**

RasterOps 208/264 **\$199./\$299.**

RasterOps 264 30/24SX **\$749./\$649.**

RasterOps NEW 21" Mono System **\$1450.**

RasterOps 19" Greyscale System **\$1299.**

RasterOps New 24STV Board **PRICE BREAK \$875.**

RasterOps 803 Accelerator for STV **\$195.**

RasterOps Video Expander **\$489.**

RasterOps NEW 24XLI 1960 System **\$4599.**

RasterOps Espresso Personal Slide Scanner **\$749.**

Daystar Digital

PowerCache II 40MHz **\$895.**

PowerCache II 40MHz w/68882 Math Chip **\$1049.**

PowerCache II 50MHz **\$1299.**

PowerCache II 50MHz w/68882 Math Chip **\$1549.**

Fusion Data Systems

TokaMac CI **\$CALL**

25 MHz 68040 PDS based Accelerator for Mac II ci.

TokaMac SX **\$CALL**

25 MHz 68040 PDS based Accelerator for Mac II si and SE/30.

TokaMac LC **\$CALL**

25 MHz 68040 PDS based Accelerator for Mac LC.

NEC

NEW 4FG 15" MultiSync Monitor **\$CALL**

NEW 3FGX 15" MultiSync Monitor **\$CALL**

NEW 5FG 17" MultiSync Monitor **\$CALL**

Dove

DoveFax Desktop / DoveFax NuBus **\$249./\$279.**

2400 bps data/9600 bps fax modem.

DoveFax + / DoveFax + NuBus **\$329./\$379.**

2400 bps data/9600 bps fax modem plus voice mail!

DoveFax LAN **\$499.**

2400 bps data/9600 bps fax network modem.

SuperMac

SuperMatch 19" **\$1690.**

Platinum Monitor 19" **\$990.**

Spectrum 8 • 24 PDQ **\$840.**

All Video Spigots **\$CALL**

E Machines

E-Machines T-16 Trinitron **With any board purchase \$1295.**

16" monitor. Top rated three years running.

E-Machines NEW! T-16/XL24 Trinitron System **\$CALL.**

24 bit accelerated video board with NTSC. Incredible Value!

NEW! E-Machines E-16 Monitor **New Low Price \$995.**

16" color monitor for on board video. Quadra ready

TechWorks

NuBus 10 Base T, Ethernet Card **\$209.**

NuBus 10 T, Thin, AAUI Ethernet Card **\$269.**

GraceLAN Std. 50 User Version 2.0 **\$329.**

GraceLAN Asset Manager **\$559.**

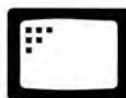
Seiko

CM1445 24 Bit Color Bundle **\$1229.**

14" RGB monitor with RasterOps 24SX 24 bit color board.

CM1445 8 Bit Color Bundle **\$779.**

14" RGB monitor with RasterOps CB208 color board.



MacOutlet
GRAPHICS DISPLAY SYSTEMS SPECIALISTS

48860 Milmont Drive #103C
Fremont, CA 94538
(510) 623-8890 Fax (510) 6233-8894

800-622-6885

CALL FOR FREE CATALOG

CIRCLE 349 ON READER SERVICE CARD

CLASSIFIED



SyQuest



Seagate

RICOH

TEAC



PIONEER

Quantum

Video Packages

All Packages Include monitor, video board & cable!

14" Color 256 Colors	499
19" Grayscale 256 Shades	799
19" Trinitron 256 Colors	1,999
19" Trinitron 16-M Colors	2,899

MicroProcessor Trinitron



Includes 19" Trinitron, 8-Bit Video Board, & Cable!

\$1,999

Featuring: built-in microprocessor control; easy access to advanced screen and image adjustments; automatic multi-sync; "plug-and-play" with Quadra and Iliac; and Trinitron flat-screen quality!

24-Bit Color Scanner



\$999

Epson Engine

An affordable, fine quality, flatbed (A/A4), 24-bit color scanner for business and professional applications. Priced for less than 8-bit color scanners. Provides precise single-pass, 16 million colors (256grayscale) at 300 dpi and output at 600 dpi. Auto recalibrate with every scan. Three rare earth lamps for true colors.

24-Bit Color Scanner 110 VAC 999

24-Bit Color Scanner 220 VAC ... 1,099

Software Color Studio LE, and Scan-Do 149

Erasable Optical



\$1,399

3-1/2" Optical 128 Meg.

Each 3-1/2" erasable optical cartridge holds over 120 megabytes of data! The Sierra MO (shown) is an ideal primary or backup storage device for IBM or Macintosh personal computers. IBM and SONY compatible. Complete package - includes SCSI cable, Mac software, and external power supply.

- Industry Standard - ISO Certified
- Macintosh - IBM - SUN Compatible
- Low Cost - High Performance

128 Meg. Ricoh 3010E New! ... 1,399

128 Meg. Ricoh Cartridge New! 49

600 Meg. Ricoh ISO 5030E-I 1,899

Lowest cost per megabyte - 67 ms. average access.

600 Meg. Ricoh ISO 5031E 2,999

High performance - 35 ms. average access.

1.0 Gig. Maxoptix Tahiti-II 3,999

High capacity - 1 Gigabyte - 35 ms. average access.

Simms

All SIMMS are guaranteed and are covered by our limited lifetime warranty!

256K - 256Kx8-100/Mac*	8
1 M - 1Mx8-100/Mac**	3
256K - 256Kx8-80/Mac*	9

SyQuest Drives



\$429 \$589

Mobile 44 Mobile 88

Complete! Includes cartridge, cables and software!

Additional Cartridges:	1 to 4	5+
44 Meg. Cartridge	68	65
88 Meg. Cartridge	109	99

Hard Disk Drives - Internal & External



120 Meg. Pocket Portable
\$399

Small, light-weight, and low power best describes this state-of-the-art drive system. Dimensions 1 x 4 x 8!

60 Meg. Maxtor 17 ms.	299
80 Meg. Maxtor 17 ms.	349
105 Meg. Quantum 28 ms.	399
120 Meg. Maxtor 17 ms.	399



105 Meg. Sierra
Light-weight and rugged, the Sierra is the affordable and transportable hard disk!
\$389

52 Meg. Quantum 28 ms.	269
105 Meg. Quantum 28 ms.	389
240 Meg. Quantum 11 ms.	709



Vista 120 Meg. \$399

Vista - Maxtor 7120S, 17 ms.
While quantities last!

Quantum 3-1/2" LPS	Internal	Vista External
52M - LPS 52 11 ms	229	289
105M - LPS 105 11 ms	349	409
240M - LPS 240 11 ms	659	719

3-1/2" LPS - "Low Power" Series

52M - LPS 52LP 28 ms	219	279
105M - LPS 105LP 28 ms	339	399

3-1/2" Pro Series

425M - Pro 425 12 ms	1,139	1,199
520M - 2624SA 12 ms	1,239	1,299

Fujitsu 3-1/2" Half Height

520M - 2624SA 12 ms	1,239	1,299
5-1/4" Full Height		

350M - 2261SA 15 ms	1,199	1,259
650M - 2263SA 15 ms	1,239	1,299
960M - 2266SA 15 ms	1,939	1,999

Maxtor 3-1/2" Low Profile/Low Power

60M - 7060S 17 ms	239	299
80M - 7080S 17 ms	289	349
120M - 7120S 17 ms	339	399

5-1/4" Full Height - Panther

1.0G - Panther 13 ms	1,839	1,899
1.5G - Panther 13 ms	2,439	2,499

Vista -

The Relax Vista is our most popular and most dependable enclosure. Simple, rugged (metal construction), and stylish. The Vista has a "zero footprint" for the Classic.

The power supply is auto sensing (90 - 230 VAC, 40 watts half height, 50 watts full height).

Every Vista comes complete with all cables, software and manuals. The Vista utilizes external termination and dual 50-pin Centronics connectors and a push-button SCSI address switch for ease of use.

Every unit is tested, formatted, loaded with software, and tested again to assure your complete satisfaction.

Seagate 3-1/2" H-Height	Internal	Vista External
46M - ST157N 28 ms	219	279
170M - ST1201N 15 ms	539	599
330M - ST1401N 12 ms	1,209	1,269
425M - ST1480N 14 ms	1,309	1,369
525M - ST1581N 14 ms	1,509	1,569
1.0G - ST11200N 12 ms	2,609	2,669

5-1/4" Full Height - WREN

300M - ST4350N 16.5 ms ..	1,099	1,159
600M - ST4702N 16.5 ms ..	1,439	1,499
660M - ST4766N 15.5 ms ..	1,569	1,629

Vista 1.0 Gig. \$2,399

Vista - Seagate WREN, ST41200N, 15 ms. Limited Time Offer!

1.0G - ST41200N 15 ms ...	1,839	1,899
1.4G - ST41650N 15 ms ...	2,339	2,399
1.9G - ST42100N 12.9 ms.	3,369	3,429

5-1/4" Full Height - WREN Runner

330M - RUNNER 10.7 ms ..	1,239	1,299
660M - RUNNER 11.9 ms ..	1,639	1,699

Quadra - 256K Video SIMM***	48
Classic - 3 Meg. Exp. w/1 Meg.	49
Powerbook - 2 Meg. Exp. Card	229
Powerbook - 4 Meg. Exp. Card	429
Powerbook - 6 Meg. Exp. Card	589
* minimum 8 ** minimum 4 *** minimum 2	

Price -

Our store allows us to purchase at the lowest possible cost, and we manufacture in our own factory. Then we pass the savings on to our customers.

Performance -

SyQuest business and professional users demand top performance. The WREN Runner and Quantum high-performance 5-1/4" drives.

Service -

All products are 100% tested and you probably won't need our help - but if you do, our PSR service program will have you up and running in 48 hours guaranteed!

Selection -

We carry more than 300 different products for the IBM, Macintosh and SONY. From 120 Megabyte portable hard disk to 240MB Trinitron video packages we cover more of what you need. Call for 1992 catalog.

Quality -

We only ship quality products that you can depend on. And if not, we'll replace them for free!



DAT - ExaByte - Tape

Tape Drives include: media; software; and cables!

60 Meg. Tape Vista TEAC	429
160 Meg. Tape Vista TEAC	529
250 Meg. Tape Vista Archive	599
2.0 Gig. DAT Sierra Archive ..	1,359
2.0 Gig. DAT Vista Archive ...	1,369
2.2 Gig. Tape Vista ExaByte ...	2,099
5.0 Gig. Tape Vista ExaByte ...	3,329



\$1,359

2.0 Gig. Portable backup solution for the Mac.

Backup software and cassette included!

Call or FAX for Fast Service!

No surcharge for VISA or MasterCard. Items available for approved accounts. We ship same day via Federal Express.

We will BEAT any competitor's price for comparable product - call for details!

510-471-6112

RELAX
T-E-C-H-N-O-L-O-G-Y

"Providing exceptional value and an extra measure of service - since 1978!"

3101 Whipple Road • Union City, CA 94587
FAX: 510-471-6267 • TEL: 510-471-6112

CLASSIFIED

MacUser
MARKETPLACE

PERIPHERALS

The Best Products, Prices and Service

1-800-626-1889

6113 South 380 West, Salt Lake City, Utah 84107 (801) 265-8882

Call us for our
complete catalog.



**DeskTop
irect Inc.**

We carry the full line of products from:

RasterOps	MediaTime	\$1645
	24STV or 24Sx(s)	\$825 / \$660
	16" Color Monitor / 24Mx board	\$1235 / \$1235
	24XLi 19" Hit. or Trin. System	\$3705 / \$5600
	8XLi 19" Hit. or Trin. System	\$2635 / \$4530
	ClearVue/GSXL 19" or 21" System	\$1300 / \$1545

DAYSTAR

PowerCache

	33MHz or w/Math	\$699 / \$899
	40MHz or w/Math (with adapter)	\$899 / \$1099
	50MHz or w/Math (with adapter)	\$1399 / \$1679
PLI	Infinity Optical Int./Ext.	\$1560 / \$1680
	Infinity Floptical Int./Ext.	\$495 / \$550
	Infinity 40 / Infinity 88 Removable	\$595 / \$775

MacUser Specials: Z-NIX MAC Cordless Super Mouse \$65 OrTek Extended Keyboard \$95

CIRCLE 342 ON READER SERVICE CARD

PRINTERS

**600 X 600 dpi
POSTSCRIPT
LIQUIDATION**

\$2495⁰⁰

Starting at:

- 7 megs of RAM
- Cannon 8ppm Laser Printer Engine
- Advanced AMD 29000 RISC Processor
- Up to "10" times Faster than the IINT
- ISI (simultaneous PC or Mac Printing)
- AppleTalk, RS232, SCSI Interface
- Dual Page Processing

1-800-375-9000 1-817-754-2120

CIRCLE 345 ON READER SERVICE CARD

9-Track Tape Subsystem For the Macintosh™



Exchange data files between your Macintosh and any mainframe or mini-computer using IBM compatible 1600 or 6250 BPI 9-track tape.

Unit can also be used for disk backup. Transfer rate is up to 16 megabytes per minute via your SCSI interface. Subsystem includes, tape drive, software, and complete documentation. For more information, call us today!

QUALSTAR®

9621 Irondale Avenue
Chatsworth, CA 91311

FAX: (818) 882-4081

Telephone: (818) 882-5822

Macintosh is a trademark of Apple Computer, Inc.

CIRCLE 343 ON READER SERVICE CARD

SOFTWARE/ACCOUNTING

Point of Sale

"The POS System that Apple uses!"



POS•IM

This superior system exceeds all the expected POS features and provides the user with reports to make effective sales and inventory management decisions.

For Product and Reseller information, Call: Ensign Systems, Inc.

(801)546-1616 / Fax:(801)546-6490

Inventory Management

CIRCLE 346 ON READER SERVICE CARD

SCANNERS

SHARP® Color Scanners

JX-320 Mac Bundle \$1479

JX-320, SCSI Interface, SCSI Cable, Adobe Photoshop

JX-450 Mac Bundle \$3779

JX-450, GPIB Interface, GBIB Cable, Adobe Photoshop

\$100 off any Sharp Color Scanner - with the purchase of a Mac system or SuperMac Color Graphic Display system.

The one stop solution for all your computer needs.



Allied International Purchasing
9427 Lurline Ave. Chatsworth, CA 91311

Tel: (818) 882-7034 • Fax: (818) 882-7503

CIRCLE 344 ON READER SERVICE CARD

BAR CODING

BAR CODES



* WORTHINGTON *

- Labeling Software — Bar Codes, Images, Text — Flexible Design
- Complete — Nothing Else to Buy
- Code 39, UPC/EAN and PostNet
- Not HyperCard Dependant
- Simple, Easy-to-Use, Plug & Play

WORTHINGTON

DATA SOLUTIONS

417 Ingalls Street, Santa Cruz, CA 95060

- 42 PostScript Type 1 Fonts.
- Generate film masters from PageMaker, Illustrator, Quark, WriteNow, etc.
- \$199 includes Labeling Program & Fonts
- 30 day money back guarantee

800-345-4220 OR 408-458-9938

BUSINESS

MAIL ORDER MANAGER

SuperMOM—a complete database solution for catalog mail order businesses • Easy order entry • Invoicing, packing slips, mailing labels, billing • Inventory Control • A/R • UPS • Credits>Returns • Commissions & Royalties • Extensive reporting on Inventory, sales, advertising • Demo \$15 • + \$3 s/h
National Tele-Press
P.O. Box 98
Newton Centre, MA 02159
1-(800)-448-0988

Print Multipart Forms on Mac

Apple Daisywheel Printer - crisp text and 10-part forms on all Macs. Fast 40 cps. Fixed & proportion fonts. Auto boldface, underline, 15" paper. New \$449, Recond. \$349 includes ribbon, printwheel, point-&-click printer resource, I/F cable. New sheetfeeder \$49, tractor \$129. High commercial quality. 90-day guarantee. Quality Discount Computers, Inc. 135 Artist View Drive Wellington, NV. 89444 (800) 472-7444

BAR CODING

ElseWare™

C O R P O R A T I O N

CheckList 2.02

1991 Eddy Award winner!

Checks your PageMaker and PostScript files for font and graphic problems.

DataShaper 1.2

Automatically formats database text files during import into PageMaker

\$179.95 Each

**For more info call:
206.547.9623**

CIRCLE 347 ON READER SERVICE CARD

BUSINESS

TELEMAGIC
SOFTWARE FOR SUCCESS IN BUSINESS

"The runaway leader in sales, marketing and telemarketing software." (Datapro Reports)

"...better than any similar sales management tool we've seen." (InfoWorld)

TELEMAGIC is so easy to learn and use, you'll make more sales immediately!

Runs on all popular computers, laptops, and networks.

Recall Tickler, Appointments, Formletters, Auto Dial, Reports, Order Entry, and More.

Remote Control International

800-992-9952

5928 Pascal Ct #150 Carlsbad, CA 92008

CIRCLE 348 ON READER SERVICE CARD

CD-ROM

*Category
begins on
the next page.*

CD-ROM

We'll meet or beat any advertised price on CD-ROM products.

NEC These NEC bundles include software, cables, amplified stereo speakers, headphones, and educational, interactive CD software titles. Take advantage of these special savings today!

NEC CD-Gallery as low as \$499

Get the Illustrated Encyclopedia, TimeTable of History, World Atlas, Beethoven's 9th, Cosmic Osmo, Desert Storm, & Cinderella (Discs) bundled with the NEC Intersect CDR-36 #C1977 for only \$499, or bundled with the Intersect CDR 73 #D1978 for only \$769.



NEC 11 CD-ROM Drive Bundle

Get the Illustrated Encyclopedia, Time Table of History, World Atlas, Shakespeare, Sherlock Holmes, Birds of America, Mammals, Beethoven's 9th, Cosmic Osmo, Desert Storm, & Cinderella (Discs) bundled with the NEC Intersect CDR-36 #D1977, for only \$575, or bundled with the Intersect CDR 73 #E1978, for only \$849.



Bonus 2 FREE CDs!

Buy 2 other CDs with any drive bundle on your 1st order and get ClassROOM & World FactBook FREE. A value of \$200. Quantities limited. Use code #D2.



1 FREE CD

Buy a CD-ROM drive of your choice and get the EDUCORP CD Sampler free. \$10 value.

CD-ROM Drives

Your choice of cable, FREE! All drives come with driver software and cable. Specify #982 SCSI to SCSI or #981 Mac to SCSI cable.

1981	CD-Tech Porta Drive: 325ms/64K buffer	\$599
	Multimedia HANdisc and America the Beautiful Guide Disc are included free w/purchase.	
1937	Toshiba XM3301 325ms/64K buffer	699
1931	Chinon CDA-431 350ms/32K buffer	579
	EDUCORP CD 2.0 included free w/purchase.	
1978	NEC CDR-73 300ms/64K buffer	679
1977	NEC CDR-36 500ms/64K buffer	479

Get 7 CD-ROMs for only \$199 Buy any drive and get the Illustrated Encyclopedia, Time Table, World Atlas, Shakespeare, Sherlock Holmes, Birds of America, and Mammals for only \$199! #1599.

CD-ROM Titles

Education

1590	Desert Storm	33.00
1691	FindIT Webster	69.95
1605	Japanese for Everyone	279.00
1261	Learn to Speak Spanish v1	79.95



1st CD-ROM to win an Eddy Award!

1566 Dictionary of the Living World...\$199

1204	Learn to Speak French v1	79.95
1361	Lingua-ROM II	599.00
1570	LifeSaver - Learn first aid	99.00
1584	The Orient	149.00
1666	Peter Rabbit (Discs Books)	74.95
1626	Svinga: Zimbabwe Encyclopedia	74.95

Desktop Publishing

1625	Aquatic Art	149.00
1389	Desktop Publishing CD 2.0	99.95
1587	Donatelli Portfolios: Lingerie	129.95
1338	Image Club Art/TypeVendor	59.95
1581	International Graphics Library	299.00
1585	Ocean Imagery	99.00
1594	Photos On Disk	179.95
1730	Pre-SEPS v.1: San Francisco	199.95
1885	Showplace w/MacRenderMan	469.00
1595	SwimSuit CD	199.00
1653	Wraptures: 120 seamless textures	95.00

Sound Effects/Music

1347	Beethoven's 9th	79.95
------	-----------------	-------

1589	Brahms: A German Requiem	55.00
1565	Grooves	99.00
1354	Magic Flute: A 3-CD Set	55.00
1582	Sound/FX	199.00

Entertainment/Consumer

1339	Cosmic Osmo	59.95
1818	EDUCORP CD Sampler	9.95
1327	Exotica-ROM 2.0	199.00
1598	Macworld Superstacks	15.00
1803	Verbum Interactive	49.95
1381	Virtual Valerie	79.95

Video

1677	ClipTime: 200 movie clips	169.95
1889	ClipMedia v.1: Sounds, video, more!	349.00
1729	ProClaim v.1: 500 mgs video footage	299.95
1659	WraptureReels One: Nature scenes	179.95

Shareware CD-ROMs

1300	EDUCORP CD-ROM 6.0: New-1 gigabyte	199.00
1610	ClassROOM*	49.95
1611	GameROOM*: over 750 games	49.95
1609	Sound Machine*	49.95
1330	Clip Art*	49.95

*Indicates that software is contained on EDUCORP CD 6.0

Over 200 titles in stock.

NEW! People at Leisure

Instant access to over 200 model-released photos of people at leisure. An excellent source for your next ad campaign or presentation.

Included are images of sporting and water activities, health, babies, kids, seniors, family life, school, and more.

It comes with a HyperCard interface allowing you to view all the pictures in color, search by key word, display color blow-ups, and copy the photos to your hard drive.

Photos are stored in 24-bit color TIFF, 8-bit grayscale TIFF and PICT. System 7 savvy. #1736, \$149.95

Published by Gazelle Technologies, Inc.

Also available from Gazelle:

People in Business

Over 200 business images of men and women at meetings and on the job. Same specs as People at Leisure.

#1735, \$149.95

800K disks as low as \$4.99 each



Individual disks only \$6.99 ea. Buy 5 for \$5.99 ea, or buy 10+ for \$4.99 ea.

4414 MacConcept

3-D graphics program.

2129 ResEdit/CICN Editor

Edit and manipulate all resources, from icons and dialog boxes to menus.

2128 Essential INITs

Contains MacPassword Demo for security and virus protection, INIT CDEV, SCSI Probe 3.0.

4601 SoundMaster 1.6.4

Control all Mac sounds: startup, restart, shutdown, and more! Works with System 7.

4043 Startup Screens

29 terrific startup screens.

2122 Virus Stompers

7 virus utilities.

4271 Board Games

Backgammon, 3D checkers, and 11 others.

7204 Clip Art Stack

Over 490 high quality bitmapped clip art.

4270 Thinking Games

11 games to stimulate your mind.

4034 Clip Art Extravaganza

100 high quality bitmapped clip art.

3431 Preschool Education

8 programs including a great dot-to-dot construction set, fun math tutors and more!

4612 Speech Synthesis

MacinTalk and much more.

Shareware Disks

5-disk sets \$24.95 each

1706 System 7 Tools- NEW!

7 True Type fonts, utilities, 80 color icons, SCSI probe, ResCompare, INITLoader, more!

1151 Best of Games v.1 31 fun games.

1224 Best of EPS Clip Art 100 EPS files.

1155 Best of Education v.1 60 programs.

1709 Type 1 Fonts Set 40 ATM fonts.

1708 Color Games Set 17 color games.

13" monitor or larger required w/256 colors.

Call for your
FREE
384-page Software
Encyclopedia!
A \$4.95 value.



EDUCORP® 1-800-843-9497

7434 Trade Street • San Diego, CA 92121 • Orders: 800-843-9497 • Info: 619-536-9999 • FAX: 619-536-2345

CLASSIFIED

MacUser
MARKETPLACE

EDUCATIONAL

THE ABSOLUTE BEST IN TESTING!

LXR-TEST™ 4.1 is the most advanced and complete testing system available for your Mac!
• Item banking • Character styling w tabs
• Test generation • Full graphic placement
• Scoring & analysis • Database selection
• Paper & interactive • Compatible gradebooks
• Mark reader support • Student mastery
• Commercial banks • Spelling checker

Highest rated software available in various editions to match your testing needs. Fully guaranteed! Pricing from \$149. For complete brochure & free preview disk, call, write, or fax:
Logic eXtension Resources
9651-C Business Center Drive
Rancho Cucamonga, CA 91730
(714) 980-0046 Fax: (714) 987-8706

CIRCLE 350 ON READER SERVICE CARD

EDUCATOR SOFTWARE

CLASSMASTER
► Enter student profiles, grades & attendance ► Graph class & student performance ► Print reports ► Import/export data

EPS SCHOOL MANAGER

► Store staff & pupil info, schedules, due process
► 1989-1990 Classroom Comp. Learn. Software Award of Excellence

MAKETEST®
► Store questions ► Print tests, answer keys quickly ► Paste graphics, equations ► Handpick or randomly select questions

1.800.669.6574

Phone: **415.752.6515**

Fax: **415.752.6506**

MOUNTAIN LAKE SOFTWARE, INC.

298 4th Avenue #401
San Francisco, CA 94118

"Service at its peak"

CIRCLE 351 ON READER SERVICE CARD

ENGINEERING

2D & 3D Structures For Architects & Engineers

An intuitive user interface combined with powerful 2D & 3D analysis capabilities makes Multiframe the ideal solution to any structural design problem. Built-in rendering, color and animation help you visualize your analysis.

Call now for a free demo.



Tel (408) 464 1949 Fax (408) 464 0731

Graphic Magic Inc

2-1645 East Cliff Dr, Suite 6 Santa Cruz, CA 95062

Multiframe

CIRCLE 352 ON READER SERVICE CARD

CIVIL • STRUCTURAL • SURVEYING •

NEW! LANDview- for CONTOURING & TERRAIN MODELING

LANDesign-

CADD/Surveying

• Data Collector and Export

• Modules available

• From US\$595 + shipping

FRAME mac-

Structural Analysis

• Frames, trusses, beams

• Full graphics

• US\$595 + shipping

Money-back guarantee. Free support.

Other programs and products:

• Deep plotting • Beam sizing • Structural design

• Road design • Section tables • Structural properties

For free catalog or info: tel: (416) 738-4601

COMPUnEering™ fax: (416) 738-5207

113 McCabe Crescent

Thornhill, Ontario L4J 2N6

CANADA

CIRCLE 353 ON READER SERVICE CARD

ENTERTAINMENT/GAMES

BodyCello
NEW Adults Only Catalog

BodyCello 5-disk Sampler Set with 25 models in full color including picture viewer plus FREE catalog.

Part #2-10, only \$39.95 plus \$4.75 s. & h. OR Send \$5.00 to receive your BodyCello catalog.

Send your order today to:
BodyCello
P.O. Box 910531
Sorrento Valley, CA 92191

CIRCLE 355 ON READER SERVICE CARD

Fonts

PRECISION TYPE
47 MALL DRIVE
COMMACK, NY 11725
516-864-0167
1-800-248-3668

AUTHORIZED DEALER FOR:

ADOBE LETRASET
AGFA LINOTYPE
ALTSYS LOGOS ON LINE
BEAR ROCK MONOTYPE
BITSTREAM PAGE STUDIO
BRODERBUND THE FONT CO.
CASADY&GREENE TREACYFACES
IMAGE CLUB ...AND OTHERS
LANSTON PLUS CD-ROMS

OVER 10,000 fonts

CIRCLE 356 ON READER SERVICE CARD

FREE FONTS & CLIP ART

TRY US! Get 56 great fonts or 274 of our best selling clip art images-FREE. 6/3.5" disks per pack. Credit Cards only!

PAY ONLY \$5.00 SHIPPING PER PACKAGE

satisfaction guaranteed since 1985

SMC SOFTWARE PUBLISHERS

619 931-8111 ext 511

CIRCLE 357 ON READER SERVICE CARD

FOREIGN LANGUAGES

MacFlash Cards



**Effective
Expandable
Affordable**

Vocabulary tools for all Macintosh computers:
**French German
Russian Spanish
Latin Czech**

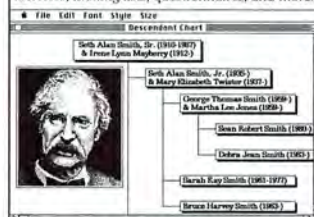
Over 2000 foreign words and 1000 more foreign synonyms. Only \$25 each. Compare our prices and save! **ORDER TODAY!** Cyrillic & Czech fonts available! Call/write for more information: The Language Quest Software Co. 101 First Street Suite 428 Los Altos, CA 94022
800-622-3574 or 415-949-2876

CIRCLE 358 ON READER SERVICE CARD

GENEALOGY

REUNION the family tree software

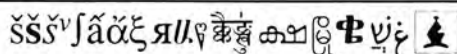
Reunion quickly records and links family tree information. Version 3.0 identifies relationships, supports hi-res color and grayscale images, creates large graphic charts, family group records, family histories, mailing lists, questionnaires, and more.



Call, write, or FAX for brochure & sample printouts.

Leister Productions
P.O. Box 289, Mechanicsburg, PA 17055
phone 717-697-1378 — fax 717-697-4373

Fonts



All world alphabets. Type-1 Postscript & TrueType Fonts
All-Europe IPA VNam Grk. Russ...Georg. Armen. Chess Ethiop.
Hindi Sanskr.Guj.Gurm.Beng.Kann.Tel.Mal.Tamil Sinhala Burm.
Thai Lao Khmer; Script Managers Hebr.Arab.Pers.Pashto Mongol
Chin. Jap. Kor. & Indic. Full Catalog \$5 Ecological Linguistics Box 15156 Wash. DC. 20003

FOUND A BARGAIN?

Let Your Source Know You Found it in
MacUser Marketplace

NO GROWING PAINS HERE!

MacUser Classified's total flexibility lets you create your display in the size and shape that's just right for your company and its products at every stage of your growth. Start as small as two inches. Grow as large as a two-page spread. At the pace that suits your own expansion plans. Whatever your needs, you'll find Classified the perfect solution for successful selling to 375,000 Macintosh Business Buyers every month!

MacUser Classified
800-825-4237

MacUser
MARKETPLACE

CLASSIFIED

GRAPHICS

Artbeats

Metallic Attributes

Backgrounds for Multimedia 2 (in color!)

PICT images for presentations, slides and 3D texture mapping, 40 images + extras. CD-ROM-\$289

800-444-9392 or 714-881-1200

ARTBEATS, Box 20083, San Bernardino, CA 92406

CIRCLE 359 ON READER SERVICE CARD

Fax us your Logo

We'll return-fax you a quote to create a high quality EPS file in Illustrator, Freehand and PICT format.

NORTHERN LIGHTS COLLEGE

Mac or MS-DOS

MacPOWER

FAX 800 765-4504 Voice (609) 653-0696
or 609 926-3864 P.O. Box 109
Linwood, NJ 08221

CIRCLE 360 ON READER SERVICE CARD

IMAGES WITH Impact!

ACCENTS & BORDERS 1

Suggested Retail: \$129.95

Also Available:
People 1
Business 1
Graphics & Symbols 1

3G Graphics, Inc.
114 Second Ave. S.
Suite 104
Edmonds, WA 98020
(206) 774-3518

800-456-0234
Call For A Free Catalog

CIRCLE 361 ON READER SERVICE CARD

Tell Your Source!

I Found it in

MacUser Marketplace

THE SANTA FE COLLECTION

NATIVE AMERICAN & SOUTHWEST Images. Ancient to Modern Designs. Paint format. 500 ILLUSTRATIONS and 140 BORDERS on 3 DISKS! FREE Delivery! Check, P.O.

Orders & Information:
(505) 891-1600

1-800-245-7824 \$79.

RT GRAPHICS

602 San Juan de Rio, Rio Rancho, NM 87124

CIRCLE 362 ON READER SERVICE CARD

MAPS!

Professional Quality Maps for Graphic Design!

Publications • Presentations • Brochures • Slides • Teaching Aids

World • Continents • Major Countries • 25 Major US Cities

Detailed Coasts, Islands, Lakes, Rivers

Globes • US States with Counties

Available as object EPS or PICT files

Compatible with all popular DTP and Graphic Design software!

★★★★★

For FREE catalog with Sample Maps:

800-334-4291

MicroMaps Software

25 Main St., Box 727, Laramie, WY 82030
Voice: 609-397-1011 • FAX: 609-397-5724

CIRCLE 363 ON READER SERVICE CARD

LANGUAGE TOOLS

Macintosh Cross Assemblers

μASM™ Cross Assemblers for the Macintosh™

• TEXT EDITOR, CROSS MACRO ASSEMBLER, AND COMMUNICATIONS FACILITY IN A COMPLETE INTEGRATED DEVELOPMENT ENVIRONMENT

• S OR HEX FILE OUTPUT DOWNLOADS TO MOST EPROM PROGRAMMERS

AVAILABLE FOR MOST 8-BIT MICROPROCESSORS, 68HC16, AND 68000/010. CALL OR WRITE FOR TECHNICAL BULLETIN. 30 DAY MONEY BACK GUARANTEE.

M/C V/AE: **Micro Dialects, Inc.**
DEPT. MU, PO BOX 190
LOVELAND, OH 45140
(513) 271-9100

CIRCLE 364 ON READER SERVICE CARD

PUBLIC DOMAIN

FREE

MAC & IBM SOFTWARE CATALOG

24 Pages! ASP Member

SOFTSHOPPE, INC.

P.O. BOX 3678
ANN ARBOR, MI 48106
Tel: (313) 761-7638
FAX: (313) 761-7639

Toll-Free—24 Hrs.

1-800-851-8089

CIRCLE 365 ON READER SERVICE CARD

SCIENTIFIC

RockWare

Scientific Software

4251 Kipling St., Ste. 595
Wheat Ridge, CO 80033
(303) 423-5645 • FAX (303) 423-6171
RockFAX (303) 423-7112

FREE SOFTWARE CATALOG!

Over 160 scientific applications for the Mac & PC!

SHAREWARE

FREE 6 3.5" DISKS FULL OF VIRUS-FREE SOFTWARE

Games • Education • Religion
Hypercard • Fonts • Graphics
and Business - FREE! Pay \$5.00 shipping per package. Credit Cards only!

SATISFACTION GUARANTEED SINCE 1985

SMC

SOFTWARE PUBLISHERS

619 931-8111 ext 511

CIRCLE 367 ON READER SERVICE CARD

THE CUSTOM FIT, TAILORED FOR GROWTH!

Take advantage of Classified's size and shape flexibilities and our one-, two-, and three-color options to create the ad that's just right for your product today. Then expand your space as you grow your sales in MacUser Marketplace—the showcase read every month by 94% of MacUser's 375,000 proven, qualified Macintosh Business Buyers.

MacUser Classified

800-825-4237

SCIENTIFIC

The Physicist's Assistant

Chemist's Engineer's

Igor

Graphing and Data Analysis

- Unlimited data length
- Incredibly fast
- High resolution printing
- Extensive analysis
- \$295, VISA & MC
- 30 day guarantee

WaveMetrics (503) 620-3001

P.O. Box 2088 • Lake Oswego, OR 97035

CIRCLE 366 ON READER SERVICE CARD

SCIENTIFIC

MISCELLANEOUS/ ACCESSORIES

DUST COVERS

ALL FABRIC

- Heat Ventilation, will not become stiff or crack with age!
- Easy to Use • Machine Wash & Dry!
- Highest Quality, Custom-Fit!
- All makes & models! • Custom orders! • Available in Gray, Tan, Navy, Royal, Red or Brown
- 100% Satisfaction Guarantee!
- Outstanding service since 1983!

11-30 Mac Classic & Keyboard	24.95	10-56 Mac SE or IIe Keyboard	9.95
10-74 Mac SE & IIe Keyboard	24.95	11-34 AppleColor II Keyboard	19.95
10-75 Mac SE & IIe Keyboard	24.95	11-23 Radius Pro II Monitor	24.95
11-35 Mac IIx Computer Only	15.95	10-95 Radius Pro II Keyboard	24.95
11-36 Mac IIx Keyboard Only	29.95	11-22 Super Mac II Keyboard	29.95
11-37 Mac IIx Keyboard Only	29.95	10-37 Imagewriter II	15.95
10-73 Mac IIx Keyboard Only	29.95	10-90 LaserWriter II	24.95
11-02 Mac IIx Keyboard Only	19.95	11-23 Radius Pro II Keyboard	24.95
11-01 Mac IIx Keyboard Only	15.95	11-52 SuperMac II Keyboard	15.95
10-88 Mac IIx Keyboard Only	15.95	11-22 H.P. DeskWriter	19.95
11-33 Mac IIx Keyboard Only	19.95	11-40 T1 microScan PS	19.95
11-32 Mac IIx Keyboard Only	29.95	11-40 T1 microScan PS	19.95

Add \$4.00 Shipping & Handling (Check, MO, COD, VISA/MC) • MU Spill

CO-DU-CO Computer Dust Covers

4802 W. Wisconsin Ave., Milwaukee, WI 53208
800-735-1584 414-476-1581 476-9329 FAX

CIRCLE 368 ON READER SERVICE CARD

DATA CONVERSION SERVICES

TAPE/DISK CONVERSIONS

Conversion services for your Macintosh to over 3000 computer systems. Capabilities include converting to or from:

- Magtapes • Mini & Micro Computers
- Word Processors • Typesetters

Data can be supplied in over 450 software packages. OCR scanning also available.

Pivar Computing Services, Inc. #MU

165 Arlington Heights Rd.
Buffalo Grove, IL 60089
800-CONVERT

CLASSIFIED

MacUser
MARKETPLACE

DESKTOP PUBLISHING SERVICES

BIG COLOR Postscript Printing

- 400 Dpi
- 950% Enlargement
- Large Format
- 34" Wide

Call For Info And FREE Samples: 800-535-7236
316-265-6224

City Blue PRINT, INC.

CIRCLE 369 ON READER SERVICE CARD

PostScript Output: Reflex or Film
Lowest Prices in USA & No Bump in \$ for graphics • Next Day Air \$3 or less • 1200/2400 Output • FREE Quality Control Kit • High Speed Modems Sup. 24 hr/day • Flexible Monthly Rates • Sp. Rates to Schools • Full Color Service • Cost Effective up to 1500 ft/mo • Off. Hrs 9 am to 11 pm.
ENTERGRAPHICS
RR1 356A Salt Point Turnpike
Poughkeepsie, NY 12601
(800) 473-4108, modem (914) 473-5719

DISKETTE COPY SERVICES

DUPLICATION FROM \$.59 HIGHEST QUALITY MEDIA

MSDOS duplication from \$.59(5.25") and \$.86(3.5"). Prices go even lower as you continue to order!

- Duplication + 100% Verification
- Custom Labels/Sleeves/Mailers
- Custom Packaging & Assembly
- Colored Media Available
- Special Rates For Demo Software & Site Licensing
- Educational Discounts Available
- 24 Hour Turn-Around
- Guaranteed Products

800-255-3142

Diversified Systems Group, Inc.
PO Box 1114, Issaquah WA 98027

CIRCLE 370 ON READER SERVICE CARD

SLIDE IMAGING SERVICES

SLIDES
TRUE ADOBE POSTSCRIPT®
35mm, 4X5, 8X10 Transparencies
Aldus and Quark Authorized Imaging Center
• 4K/8K Resolution
• All Major Mac/PC Software
• **CANON Color PostScript®** with **FIERY®** RIP
• Lino Output
1-800-68-LASER
52737
7826 Convey Court, San Diego CA 92111
CIRCLE 371 ON READER SERVICE CARD

SLIDE IMAGING SERVICES

SLIDE OUTPUT
Mac/PC
FROM \$3

Solitaire® film recorder, slide dupes, overheads, large format. 24 hour BBS. Over 100 programs supported.

Elegant Graphics
750 Princeton, P.O. Box 774607
Steamboat Springs, CO 80477
(303) 879-4334, BBS 879-5210

CIRCLE 372 ON READER SERVICE CARD

All Major Mac and PC Packages

100% Adobe Postscript®

- Canon Copies (Fiery® RIP)
- Custom Slides
- Free Support
- Toll-Free BBS For Data Transmission
- Free Fed Ex Shipping*

(20+ slides—rush & 24 hr. service)



VISA
MasterCard
Commercial Accounts

The WORDPRO

1-800-833-6601

CIRCLE 373 ON READER SERVICE CARD

MacUser Marketplace

is a special economical section for product and service listings.

SUPPLIES

reconditioned **TONER** cartridges!
for laser printers & Canon PC Copiers

BETTER THAN NEW!

- 20% MORE TONER
- DARKER PRINT
- 100% GUARANTEED

From **\$44.95**

We buy empties call for brochure
800-426-8196

WILLOW

Willow Products Corp.
3857 Willow Ave. Pgh, PA 15234

CIRCLE 374 ON READER SERVICE CARD

Save BIG\$ in Printing Costs



MacInker
\$48.00

Jet-Master
\$24.95

- Re-ink your Imagewriter cartridges up to 100 times with **MacInker**. Multi-color adapter for 4-band color cartridges. Universal MacInker also available to support any printer cartridge. Over 200,000 sold since 1982.

- Recharge your jet-ink cartridges for about \$1.00. Most jet-ink printers supported, single and multicolor, including Apple StyleWriter, HP, Kodak, Tektronix, Canon BubbleJet.

Ask for detailed literature

Satisfaction or 30 day moneyback. Shipping \$5.50

Computer Friends, Inc.

14250 NW Science Park Drive
Portland, OR 97229

Toll free (800) 547-3303

Telephone (503) 626-2291

CIRCLE 375 ON READER SERVICE CARD

CLASSIFIED NEVER CRAMPS YOUR STYLE!

Classified does give you solid marketing advice, lab-tested recommendations, aggressive frequency and multiple-ad discounts, and 375,000 qualified Macintosh business buyers. What we don't impose are any hard rules that cramp your creativity. You're free to choose the size, shape, and color options that are right for you and your products! So, cut loose and go for your share of big business from MacUser's 375,000 proven Mac buyers—94% of whom read MacUser Marketplace every month!

MacUser Classified
800-825-4237

P.C. Copier & Laser Printer Owners



TONER SERVICE COMPANY

UPS To:
6827 S. Broadway
St. Louis, MO
63111

We Buy Empties - Call
Ricoh Engine Toner \$49.95/Case
Deskjet Refills - \$18.99/Twin Pack
(314) 352-8667

800-88-TONER

QUANTITY DISCOUNTS AVAILABLE
CIRCLE 376 ON READER SERVICE CARD

YOUR CLASSIFIED IN MARKETPLACE GETS ACTION!!

In fact, this proven buying section has sold products so successfully—month after month—that 9 out of 10 MacUser marketplace advertisers place their ads here on a consistent basis. The one outstanding reason for this tremendous selling success is that 94% of subscribers read MacUser Marketplace! And more than 2 in 3 of them took action in the past 12 months as a result of reading Marketplace.

MacUser Classified
800-825-4237

MacUser
MARKETPLACE

MacUser's BusinessCard section is a forum for innovative, hard-to-find and low-cost MAC products and services. Ads are listed by product category and include Reader Service numbers to allow fast, easy response.

RATES:

1 issue—\$420, 3 issues—\$405, 6 issues—\$395, 12 issues—\$380.
Multiple-ad per issue rates also available.
Prepayment must accompany each insertion.
AMEX/VISA/MC welcomed.

AD FORMAT:

MacUser will design and typeset each BusinessCard ad. Advertisers should furnish typewritten copy. Ads include: 1) Headline (1 line, initial caps=30 characters max, all caps=25 characters max), 2) Descriptive copy (5 lines, 225 characters max), 3) Company name (same specifications as headline), and 4) Address and telephone number (2 lines, 40 characters per line). No logos, artwork or camera-ready ads. Publisher reserves the right to edit supplied copy to meet section specifications.

DEADLINES:

MacUser is published 12 times a year. The BusinessCard closing is approximately two months prior to issue date.
Please send copy and payment to: MacUser BusinessCard, One Park Avenue, 3rd Floor, New York, NY 10016, ATT'N: Paul Fusco.
For more information, call Paul Fusco at 800-825-4237 or 212-503-5866.
FAX: 212-503-5860.

HARDWARE/COMPUTER SYSTEMS

APPLE-CPUS-APPLE-PRINTERS

- COD Purchasing at any volume
- High inventory at all times
- Selling Direct & indirect at any volume
- Exporting & importing at any volume
- Our high volume makes our low price possible

Gulf Technology

Los Angeles, CA
818-785-2800 FAX: 818-908-5334

CIRCLE 432 ON READER SERVICE CARD

ACCOUNTING

CHECKS FOR QUICKEN & MYM

Continuous, laser & wallet size. Pacioli, Rags to Riches, Money and many more. \$29.95 for 250 plus shipping. M/C, VISA. Send voided check W/starting number. Software compatible forms available.

COMPATIBLE FORMS & CHECKS

Box 669324 Charlotte, NC 28266
(800) 654-9044 Fax (704) 393-7874

CIRCLE 437 ON READER SERVICE CARD

ENTERTAINMENT/GAMES

QUIT HORISING AROUND

Get sports handicapping help. Call or write for our free software catalog on horse racing, greyhound handicapping and sports betting. Prices are affordable ranging from \$8 to \$78. Visa and MasterCard accepted.

SOFTWARE EXCHANGE

P.O. Box 250002-MU, W. Bloomfield, MI 48325
1-800-527-9467 Ph/Fax: (313) 788-3342

DATA RECOVERY SERVICES

MAC DATA RECOVERY SPECIALISTS

Your Data is important. Let the Company that specializes in SCSI Data Recovery and Hard Drive Repair provide you with expert service. CPR has been recognized in many computer pubs as a leader in SCSI Data Recovery.

Computer Peripheral Repair

7570 S. US Hwy 1 Hypoluxo, FL 33462
800-765-9292 407-586-0011 (FAX) 582-7921

CIRCLE 433 ON READER SERVICE CARD

BUSINESS

OFFICE MGMT/TIME BILLING

Office Wiz™ for service professionals. Track clients & jobs/projects/cases. Print calendar & status rpts, monitor time & costs, manage profits. One-stop shopping; suited for solo/small-medium office. Single/Multi-user. Demo.

ORYX ASSOCIATES

1867 Union St. Suite B San Francisco, CA 94123
(415) 563-9971 or (415) 563-0238 FAX

CIRCLE 438 ON READER SERVICE CARD

Athletic Scheduling Software

Athletic Scheduling Software for Apple Macintosh now available. Schedule leagues or tournaments, seeded or round robin, even facilities all without conflict. Stat. Management Software also available for most sports. Works for any sport.

Amalgamated Softworks, LTD.

1600 NE 18 Ave. PO Box 18084 Minn, MN 55418
612-649-4481

CIRCLE 443 ON READER SERVICE CARD

INSURANCE

Insures Your Computer

SAFWARE's Computers insurance coverage provides replacement of hardware, media and purchased software. As little as \$49 a year covers theft, accidents, power surges and more!
Call TOLL FREE 1-800-848-3469

Safeware The Insurance Agency Inc.

PO Box 02211 2929 N High St
Columbus, OH 43202 800-848-3469

CIRCLE 434 ON READER SERVICE CARD

POS/OE 4 MAC™ Software

For Retail, Wholesale, Mailorder, Mfg., integrated 4D® based Accounting, POS, Order Entry, Inventory, Credit Card Processing, Gift Registry, Barcode, Standard/Custom Reports, Single/Multi-User. Interactive Demo available.

E.E.S. COMPANIES, INC.

2 Vernon St. #404 Framingham, MA 01701
Tel: (508) 653-6911 Fax: (508) 650-1872

CIRCLE 439 ON READER SERVICE CARD

GOLFSTAT 1.2

The ONLY Software For Golf League Secretaries. Calculates handicaps, points, and standings. Track courses, schedule, team and golfer stats. Customize to any league. Requires HyperCard 2.0
ORDER NOW before the season begins! \$79.95

AM Specialties

11470 Kaitz Ave. Warren, MI 48089
(313) 757-3070 or FAX: (313) 757-3418

CIRCLE 444 ON READER SERVICE CARD

PRINTERS

High Quality Color Output

For the Mac at low cost. Hewlett Packard, Paint Writer Excell, List \$2395.00. Our sale price \$795.00. Built-in Appletalk, All size media. Quantity Discount Available.

Terminal Exchange

171 Amory Brookline, MA 02146
617/731-6319 Fax 617/277-1984

CIRCLE 435 ON READER SERVICE CARD

EDUCATIONAL

ABBREVIATIONS? GUESS NO MORE!

Browse through over 2000 Computer Field Abbreviations and learn what they stand for. Ideal for beginners and experienced. Fax your order today! US \$19.95/3.5" Disk. \$15.95/Book. (\$24.95/Disk & Book) postpaid, Check/Visa/MC.

ALPEL PUBLISHING & SOFTWARE

P.O. Box 203 Chambly, PQ, Canada J3L 4B3
Tel. (514) 658-6205 Fax (514) 658-3514

CIRCLE 441 ON READER SERVICE CARD

FOREIGN LANGUAGE

Japanese Reading Made Easy!!

KanjiSama: complete kanji reference tool with powerful kanji lookup modes and built-in Japanese-English dictionaries, \$149; Demo, \$15! Kunren intelligent drilling stack, \$15. Both: \$159. Require KanjiTalk. Check/Money Order.

SANBI SOFTWARE COMPANY

3600 Crowell Avenue, Riverside, CA 92504
Phone/Fax: (714) 352-0276

CIRCLE 445 ON READER SERVICE CARD

SOFTWARE/ACCOUNTING

INVENTORY • POS • UPS

Take control of your inventory! Largest Mac base in USA. A/R billing, bar code/cash drwr control, auto vendor orders, custom features, taxes (GST too), customers, labels, reports, G/L links & more!
EASY for clerks. Free demo. Also UPS-US & O/S.

SHOPKEEPER Publ. Intn'l, Inc.

3711 Shamrock W-Suite 110A Tallahassee, FL 32308
904-222-8808 or FAX 904-668-9916

CIRCLE 436 ON READER SERVICE CARD

ENTERTAINMENT/GAMES

ADULT GRAPHICS

WE OFFER THE BEST IN ADULT-ORIENTED GRAPHICS FOR YOUR MAC. IF YOU ARE 18 OR OLDER, REQUEST OUR FREE CATALOGUE OF SIZZLING ADULT SOFTWARE. COLOR MACS ONLY.
VISA AND MASTERCARD ACCEPTED.

CLEARLIGHT SOFTWARE

P.O. BOX 1411, DEPT. M. Milwaukee, WI 53201
(414) 962-2616

CIRCLE 441 ON READER SERVICE CARD

GOVERNMENT

FEDERAL JOBLINK-SF171

A forms software package for completion of the SF 171. It provides forms on screen and produces unlimited copies of the 171. The forms are near typeset quality. Also contains a comprehensive user's guide. Only \$62.95. Requires MacDraw.

MULTISOFT RESOURCES

P.O. Box 235 Washington Grove, MD 20880
301-977-6972

CIRCLE 446 ON READER SERVICE CARD

BUSINESSCARD

HEALTH

Nutrition/Medical Diagnosis

The Leader in Nutrition & Exercise Software! Analyzes Recipes, Diets, & Exercise Programs. Allergy, Differential Diagnosis, & Veterinary Diagnosis (including Fish/Small Animals). Over 100,000 sold. MAC & IBM. Free Demo Disk.

N-Squared Computing

3040 Commercial Street SE, Suite 240
Salem, OR 97302 (503) 364-9118

CIRCLE 447 ON READER SERVICE CARD

MEDICAL/DENTAL

MEDstar No Experience Required

Comprehensive medical office software. Written by MD for MD's. Intuitive•Easy to learn & teach staff• Billing•Insurance•Prints Rx's•Tracks meds•scheduler•Ins CO AR•More. Trial period. Lease. Cost Effective. Also Dental. Apple VAR

Marigold Database Systems Inc.

17 Quail Hollow W. Nyack, NY 10994
Phone: 800-524-0556 Fax: 914-353-1647

CIRCLE 453 ON READER SERVICE CARD

RECREATION

SOFTWARE FOR HIKERS

Browse/print trail descriptions in the Pacific NW with Best Foot Forward™ for MAC. Fast and fun for all levels of experience! WA and OR databases each contain 700+ trails. CA soon! Program plus 1 db \$89.95 plus tax/shipping.

GRIZZLYWARE

16837 NE 176th St., Woodinville, WA 98072
Call 1-800-258-HIKE today!

CIRCLE 459 ON READER SERVICE CARD

LEGAL

TOTAL COLLECTIONS® Software

This program will keep track of large amounts of debtor data, generate almost any type of report, send letters, make phone calls, etc. The software's main features are that it is: easy to use, powerful, and simple to change.

CAPITAL TRANSACTIONS

Star Route Box 50 Greig, New York 13345
315-348-8551/-8428

CIRCLE 448 ON READER SERVICE CARD

CareTracker™ for Clinicians

A unique patient care support system. Manages the details of clinical data, freeing you to concentrate on the patient. Used at sites ranging from solo offices to the NIH. Ease of use and sophistication are superb. \$529.

Med4th Systems, LTD.

716 E. Carlisle Avenue, Milwaukee, WI
(414) 963-1985 Voice and Fax

CIRCLE 454 ON READER SERVICE CARD

CATALOG YOUR COLLECTIONS

Accession™ 2.0 lets you keep track of all the data on any kind of collection and find records by any criteria. Specialized fields for accurate data entry. Ideal for museums, galleries, collectors and universities. Working Demo \$20. CALL NOW!

OakTree Software Specialists

498 Palm Springs Dr., Suite 100
Altamonte Springs, FL 32701 407/339-5855

CIRCLE 460 ON READER SERVICE CARD

TrialMaker™

•Creates The Trial Notebook• Organizes information from all sources • Helps in development & Settlement negotiations • Developed by a Trial lawyer • Multiuser Requires FileMaker Pro \$295.00

Packer Software

12 Roosevelt Ave Mystic, CT 06355
1-800-782-9555 • Fax 203-572-0765

CIRCLE 449 ON READER SERVICE CARD

RX FOR DENTAL OFFICE PAIN

Use Joey Software for Dental Office Management daily to reduce your workload and increase productivity. It's fast, easy to use and affordable. Call today for a free demo and toll-free training session.

JOEY SOFTWARE, INC.

4954 Lincoln Drive Edina, MN 55436
MPLS/ST. PAUL 926-0238 800-688-5639 (JOEY)

CIRCLE 455 ON READER SERVICE CARD

RPN/Algebraic Calculator

MicroMath Calc has math, CS, finance, and statistics functions. It does IEEE, complex, interval, and Gaussian math. Ideal for anyone who does calculations. Excellent manual; works on any MAC. \$99.95, intro at \$49.95

MicroMath Scientific

Box 21550 Salt Lake City, UT 84121-0550
Order 800-942-6284 Info 801-943-0290

CIRCLE 461 ON READER SERVICE CARD

UTILITIES

LexaFile™ Legal Information

There's just no less expensive way to manage information on clients, cases and matters. Lexafile is especially designed for one-hand operation. Ideal during telephone conferences and court hearings. Works great on Powerbooks!

Xram Xpert Systems

344 West 23rd Street, Ste. 7C, NY, NY 10011
800/358-8559 • 212/989-8559

CIRCLE 450 ON READER SERVICE CARD

COMPILE YOUR ESTATE RECORDS

Scattered records, files & data have you frustrated? Stop Searching! The Estate Organizer provides convenient storage for your personal, financial and property details. \$29.95 + \$3 S/H. Hypercard 2.x required.

Pacific Rim Software

3027 NE 23, Portland, OR 97212
(503)284-9473

CIRCLE 456 ON READER SERVICE CARD

Disk Ranger - new version!

Catalog disks & make labels. Make a master catalog of the contents of all your disks, floppy & hard drives. DRinit will constantly update the catalog. Find any file instantly! \$59.95 + \$2 shipping. Order direct from:

GRAHAM SOFTWARE CO.

8609 Ingalls Circle Arvada, CO 80003
Phone: (303) 422-0757, MC/Visa accepted

PERSONAL MANAGEMENT

BUSINESSCARD ACCOUNT REPRESENTATIVE Sherrie Graddie 212-503-5152

NATIONAL ADVERTISING STAFF

Vice President, Classified Advertising
Paul Stafford

Classified Advertising Director
Vickie L. Pinsky

Sales Manager
Paul A. Fusco

Advertising Coordinator
Nepreil Foster

Production Director
Anne Brockinton

Production Coordinator
Chris Meyer

ADVERTISING ACCOUNT REPRESENTATIVES

212-503-5138

AL, AR, IA, IL, IN, KS, KY, LA, MI,
MO, MS, NE OH, OK TN, TX, WI,
CANADA, OVERSEAS

Tom Koletas 212-503-5136

CT, DC, DE, FL, GA, MA, MD, ME, NC,
NH, NJ, NY, PA, RI, SC, VA, VT, WV

Dennis Leavey 212-503-5111

AK, CA (209, 408, 415, 510, 707, 805,
916), HI, ID, MN, MT, ND, NV, OR, SD,
WA, WY

Laura Salerno 212-503-5140

AZ, CA(213, 310, 619, 714, 818), CO,
NM, UT



MacUser MARKETPLACE

One Park Avenue
Third Floor
New York, NY 10016
Attention: Paul Fusco

For more advertising
information,
call 212-503-5115
or 1-800-825-4237.

Take the Money and Run



Apple's always trying to make Macs that can do more than their predecessors could. What people really want are Macs that do less.



After watching Apple over the past decade, I think it's apparent that the company is never going to have a broad line of machines. You have to marvel at how much money Apple has managed to make by selling not much more than a variety of Macintoshes and a few different Apple II machines. Sure, it sells scanners, printers, CD-ROM drives, and other peripherals, but still . . . In its heyday, IBM sold an enormous variety of things. I still have an old IBM clock. The IBM meat scale and meat slicer are real collector's items.

Japanese companies are amazing when it comes to producing a variety of products. Panasonic makes a VCR in one division, a microwave oven in another division, and an electric massage chair in another division. It's obvious that American companies do not like to stretch themselves the way Japanese companies do. With Apple, this conservative approach is taken to an extreme. You have to wonder, What can Apple do to expand its business if it's not going to make an Apple Walkman? And you can be sure an Apple Walkman is not on the drawing board.

I have one suggestion for the company: Because Apple won't produce more products, the least it can do is expand the nature of its business. Apple needs to make a run-time Mac.

The Run-Time Mac

Software vendors have done this for more than a decade. They make a version of their software on top of which other people can build an application. The designer then sells the application with the underlying software engine running it. For example, a developer can design an application that uses a particular database engine. The person who buys the product doesn't get anything more than an application locked in to a database engine that runs that application only. The underlying database manager remains completely transparent to the user.

Programming languages are the progenitor of this notion. When you buy a program written in Pascal, say, you get the generated code but not a Pascal compiler. You can't reconfigure the code for your spreadsheet so that it'll work as a word processor. So why can't a specialty hardware company such as Apple bring out a Macintosh system based on exactly the same principle?

A run-time Mac would consist of special

ROMs and an architecture designed specifically to do *run-only* operations. Perhaps the source code of the software would also be in ROM. As a service, Apple could even burn the ROMs and help the developers debug their prototypes before the special machines went into production.

A good way to use a run-time Mac would be, say, as an automobile-tune-up station and emissions-control tester. The Mac is perfect for this kind of application, but why should a developer be forced to buy an entire Mac system to design such an apparatus? An inexpensive dedicated run-time Mac would be ideal. I've always believed that a Mac-based home tune-up system would be successful. It would come with the usual wires to the spark plug and timing light, plus an exhaust probe. A few digital-to-analog converters and some special software, and you'd have a tune-up station like no other. Again, if this were packaged with a run-time Mac, the cost would be within everyone's reach. Non-computer users would see it as a tool, not as a computer. Fewer people would be frightened off.

The appearance of run-time Macs would also further publicize the Mac's interface and its look and feel.

The only drawback to a run-time Mac, as far as Apple is concerned, is that someone might figure out how to turn a run-time OEM unit into a real Macintosh and sell the thing as some sort of clone. Careful recoding of the ROM and a good licensing agreement to OEM vendors of run-time products would prevent this.

Macs in Control

Early computer systems were based on the notion that you used a computer to create some sort of product such as a traffic-light-control system. You used an inexpensive version of the development system when you began to manufacture the control system. The final product was a run-time computer. You can still do this with many of the Intel chips, and many such systems are built around inexpensive PC clones. The Mac has no such outlet. It functions only as a raw computer—usually in a business or graphic-arts department. Its interface is perfect for many other applications. Of course, many of the applications are practical only if there is an inexpensive run-time unit.

Let's hope that Apple will consider the possibilities. 🖱️

Hallmark isn't the only one with cards for every occasion.



A birthday. An anniversary. The purchase of a new Mac LC.

All good reasons to buy a card. And even though we can't help you with the first two, we do have a great selection for the third.

In fact, Farallon now has every Ethernet card you'll ever need. Cards for any Mac slot. And any media. Including new 3-way adapters with thick, thin and 10BASE-T ports.

You'll also find our new

EtherMac™ line has cards with 64K RAM for blazing performance and no dropped packets—even under A/UX.

Yet although our line expanded, our prices shrank. A lot.

Of course, you get proven reliability and compatibility with major protocols. Not to mention auto-install under Apple System 7, free technical support and a 5-year warranty.

All of which will have you smiling. Make no mistake, with over

New lower Ethernet prices.

CPU & Features	Price*
Mac II Family (NuBus)	
Thick + Thin + 16K	\$249
Thick + 10BASE-T + 16K	\$249
3-way + 64K	\$329
LC	
Thin + FPU socket	\$249
Thin + FPU	\$399
10BASE-T + FPU socket	\$249
10BASE-T + FPU	\$399
Thin + 10BASE-T + FPU socket	\$329
Thin + 10BASE-T + FPU	\$479
SE/30 & IISI	
Thick + Thin + 16K + FPU skt.	\$299
Thick + Thin + 16K + FPU	\$449
Thick + 10BASE-T + 16K + FPU skt.	\$299
Thick + 10BASE-T + 16K + FPU	\$449
3-way + 64K + FPU socket	\$379
3-way + 64K + FPU	\$529
SE	
3-way	\$329



Choose Farallon and you can choose any Ethernet media—thick, thin or 10BASE-T. That's friendly greetings indeed.

three million users installed, Farallon knows Mac networking like no one else.

So call 1-800-995-7760 for details. Because for those special Ethernet occasions, there's only one place to shop. Farallon.

Farallon®

*Prices are suggested retail and are subject to change. 2000 Powell Street, Suite 600, Emeryville, CA, USA 94608. For customer service, call (510) 596-9000. Fax (510) 596-9023. Or contact us on America Online® AppleLink® GENie™ or MCI Mail® ID: Farallon. CompuServe® ID: 75410.2702. Internet ID: farallon@farallon.com. ©1992 Farallon Computing, Inc. All rights reserved. The Farallon logo design is a registered trademark and EtherMac is a trademark of Farallon Computing, Inc. Hallmark is a registered trademark of Hallmark Cards, Inc. Farallon Computing, Inc. is not affiliated with Hallmark Cards, Inc. All other products are trademarks of their respective holders.

CIRCLE 175 ON READER SERVICE CARD.

...So We Told Him Line Of Mirr

Impressing the members of a Mac user group is never easy, and if that group happens to be from Missouri, the task is all the more difficult. So we were particularly pleased to have the members of Missouri's largest user group tell us they were impressed by Mirror Macintosh peripherals.

It's easy to see why Tim Garcia thinks the new Mirror 16-inch Color Display is so exciting. Never before could you get the productivity and convenience of a 16-inch display and Mirror quality at such an attractive price. At only \$899*, the Mirror



*Call for our
free catalog.*

16-inch Color Display is perfect for publishing, illustration and scanning. Plug it right into the video port on a Quadra or add one of our high performance video boards (available in 8-, 16-, or 24-bit models) and you've got a hard working system that won't break your budget.

Another addition to the Mirror product line that's bound to build a strong following is the Mirror 128 MB Optical Drive. It gives you 128 MB of fast, reliable storage on a rugged removable cartridge that fits in your pocket. Priced at only \$1,449, the 128 MB Optical drive is perfect for storing large graphics, database files or backups. Additional cartridges are just \$59.

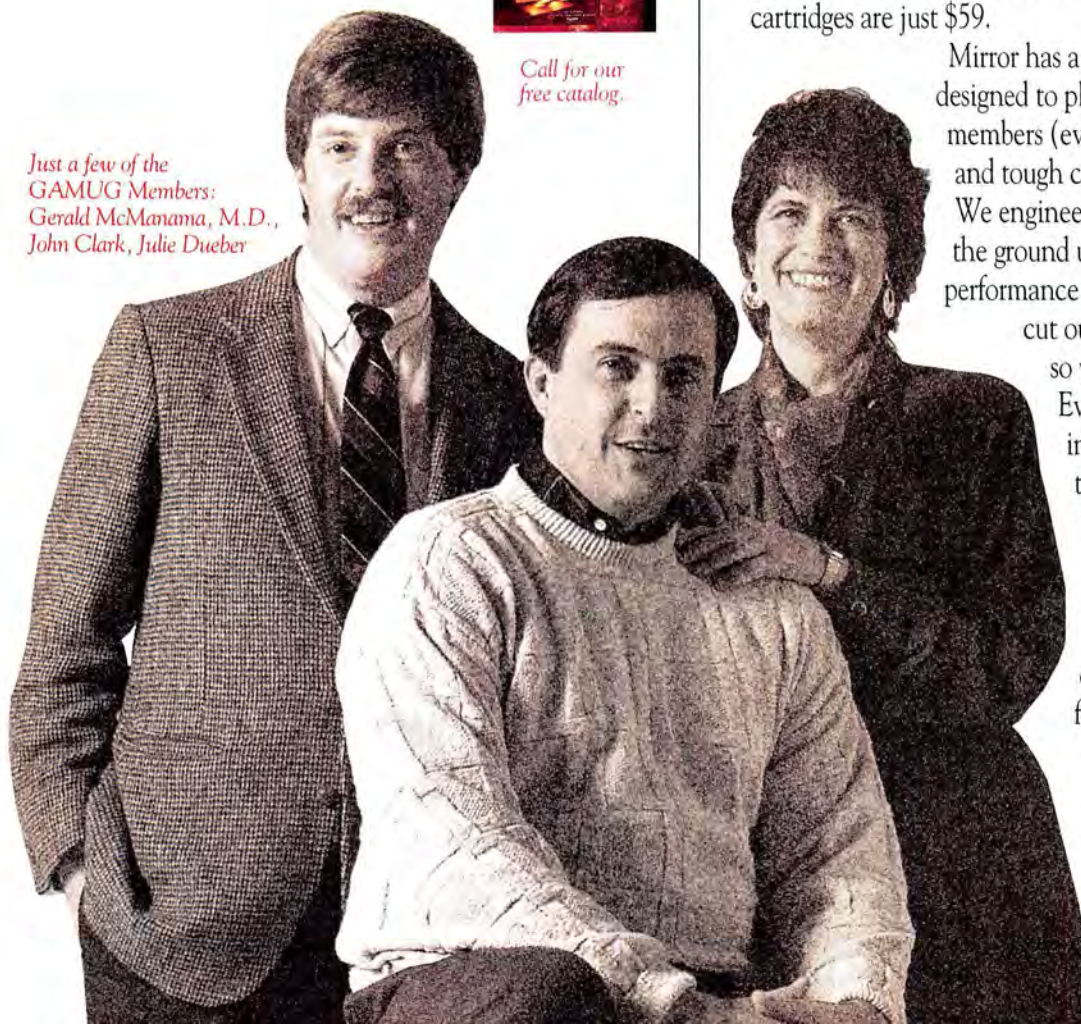
Mirror has a full line of products designed to please Mac user group members (even from Missouri) and tough customers like you. We engineer our products from the ground up to give you the best performance and features; then we

cut out the dealer mark-up so you save a bundle.

Every Mirror product includes lifetime technical support and our 30-day, "Love It or Return It" guarantee†.

Call now to order. And don't forget to ask for our free catalog; it's packed with great Mirror products and useful information.

*Just a few of the
GAMUG Members:
Gerald McManama, M.D.,
John Clark, Julie Dueber*



To Screen The Full or Products."

-Members,
Gateway Area Macintosh Users Group
St. Louis, Missouri

COLOR DISPLAYS

14-inch Color Display	\$399*
• 16-inch Color Display	\$899*
w/ 8-bit video card	\$1,299
w/ 16-bit video card	\$1,499
w/ 24-bit video card	\$1,699
16-inch Trinitron® Display	\$1,199*
w/ 8-bit video card	\$1,599
w/ 16-bit video card	\$1,799
w/ 24-bit video card	\$1,999
• 20-inch ProView V	
w/ 8-bit video card	\$1,799
w/ 24-bit video card	\$2,299
20-inch ProView (Trinitron)	
w/ 8-bit video card	\$2,499
w/ 24-bit video card	****½ \$2,999



MONOCHROME DISPLAYS

15-inch Analog Portrait Display	\$449*
w/ monochrome video card	\$599
15-inch Standard Portrait Display	
w/ monochrome video card	\$499
19-inch Two-page Display	
w/ monochrome video card	\$799
21-inch Two-page Display	\$799*
w/ monochrome video card	\$999



COLOR SCANNER

Mirror's top-rated 600 Color Scanner offers true 600 dpi scanning resolution, 24-bit color and a great price. Comes complete with Adobe Photoshop 2.0. \$1,299 ****



• Transparency Adapter for scanning slides and transparencies up to 5" x 7". \$899

• Automatic Document Feeder for scanning multiple pages automatically \$549

• New Product

HARD DRIVES

All Mirror hard drives are built with the same attention to detail that earned the Mirror 210 MB Drive MacWorld's Editors' Choice award.

	Internal	External
45 MB	\$269	\$329
50 MB (Q)	\$289	\$349
• 60 MB	\$279	\$339
105 MB (Q) ****	\$419	\$479
210 MB (Q) ****	\$739	\$799
330 MB	\$1,139	\$1,199
425 MB (Q)	\$1,339	\$1,399
425 MB (Q)	\$1,339	\$1,399
595 MB	N/A	\$1,599
1 GB	N/A	\$2,199
• 60 MB Portable	N/A	\$299
• 105 MB (Q) Portable	N/A	\$449



REMOVABLE DRIVES

All Mirror removable drives feature rugged steel enclosures, high-grade power supplies, external push-button SCSI address switch and switched convenience outlets.

• 128 MB Optical Drive	\$1,449
600 MB Optical Drive	\$2,299
44 MB SyQuest Drive ****	\$479
88 MB SyQuest Drive	\$649
1.3 GB DAT Drive	\$1,599
CD-ROM Drive ****½	\$599
• Mirror CD Information Library (with drive purchase)	\$189



CARTRIDGES

• 128 MB Optical Cartridge	\$59
600 MB Optical Cartridge	\$249
44 MB SyQuest Cartridge	\$63
88 MB SyQuest Cartridge	\$99

CIRCLE 118 ON READER SERVICE CARD.

MIRROR

1-800-654-5294
ORDER FACTORY DIRECT

MEDIA:1010

"Tim Says, If There's A Better Value In Peripherals Than Mirror's New 16-inch Color Display, Show Me..."

Mirror 16-inch Color Display
\$899 for built-in video,
with 8-bit \$1299, 16-bit \$1499,
24-bit \$1699.



Tim Garcia, President
Gateway Area Macintosh Users Group
St. Louis, Missouri